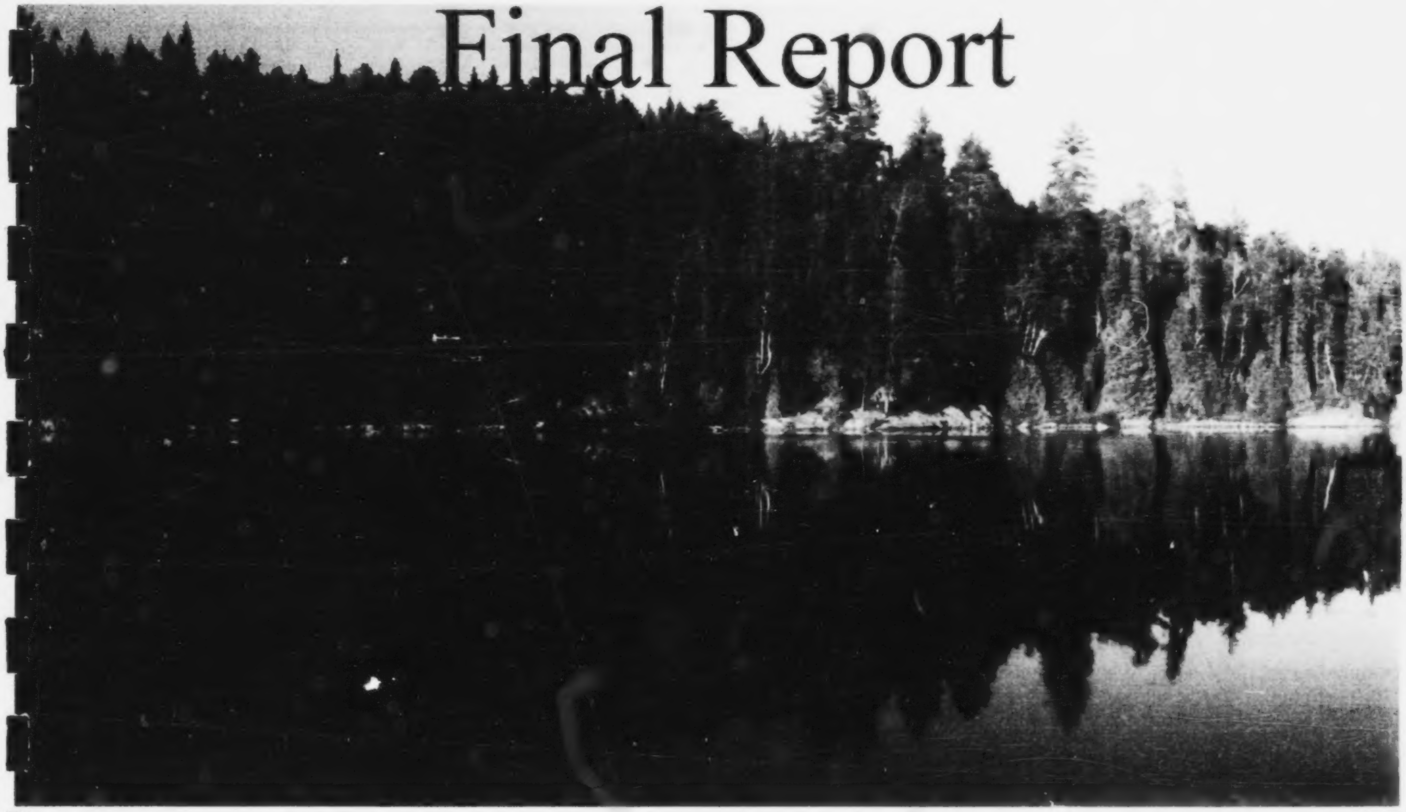
Spanish Forest
Independent Forest Audit
April 1, 2000 – March 31, 2005

Final Report



By:

ArborVitae Environmental Services Ltd.

Submitted February 24, 2006

2007-00827

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1 EXECUTIVE SUMMARY

ArborVitae Environmental Services Ltd. performed an independent forest audit of the management of the Spanish Forest for the period April 1, 2000 to March 31, 2005. The audit was undertaken using the Independent Forest Audit Process and Protocol (IFAPP), prepared by the Ministry of Natural Resources (MNR or the Ministry). The independent forest audit (IFA) examined compliance with the *Crown Forest Sustainability Act*, the terms of relevant licences, especially Sustainable Forest Licence (SFL) 542391 (held by Domtar Inc.), and the management plans in place for the Forest. The IFA assessed the performance of both Domtar Inc. (often referred to as "the Company in this report) and the Ministry, including the effectiveness of management practices and the sustainability of forest management. The audit period spans all five years of the 2000-2005 Forest Management Plan.

The focus of the audit's activities was a site visit to the Forest which included: a review of management documents at the offices of Domtar in Nairn Centre and Timmins and at MNR offices in Espanola and Sudbury, interviews with staff of the Company, the MNR, and contractors and consultations with members of the Local Citizen's Committee, the general public and local First Nations. The site visit also included intensive inspections of field sites where a variety of management activities took place in the review period. Following the site visit, several additional interviews were conducted with staff of the MNR, Domtar, and commitment holders.

The Spanish Forest has a rich history of industrial tenure and this has allowed the company to excel at some aspects of forest management. Nonetheless, recent economic circumstances of the forest industry, corporate restructurings, and the evolving regulatory environment have created a challenging context for management of the Forest. One of the strengths that the company and MNR share is a core of dedicated staff. Although not an audit procedure per se, the audit team found that local company and MNR staff were very committed to good management of the forest.

This audit makes 27 recommendations and 12 suggestions; these numbers are consistent with the number of findings in many Independent Forest Audits in recent years. The findings are directed approximately equally to the MNR and the Company. Several recommendations are directed towards improving administrative aspects of forest management, and several others are intended to ratify, or encourage management actions which, according to both the MNR and the Company, have been planned for the Forest.

The Spanish Forest LCC is a highly functional committee, comprised of dedicated volunteers. The committee is aided by conscientious efforts on the part of Ministry staff. This audit makes some suggestions directed at the LCC, but overall found no serious shortcomings with the committee.

The Audit Team spent a reasonable amount of time on the topic of First Nations participation in management of the Forest. Although First Nations are represented on the LCC, their representation was routinely missing from LCC meetings – an issue which the MNR and the LCC are attempting to address. Vexing for the Company is the fact that MNR's list of interested First Nations is large (including 16 communities) while there are no First Nations reserves on the Forest itself. The Audit Team shares the Company's concerns that greater specificity is required of the MNR in determining what constitutes an "interested" community, and a recommendation is directed at this. In addition, the MNR's records of efforts related to First Nations consultation were found to be wanting. Although it is obvious that efforts were made to facilitate First Nations involvement, more effort is needed to keep accurate records of this, and other aspects of public consultation. Recommendations to address these issues have been made.

The Company's silvicultural performance was very good. Achievements in artificial regeneration, site preparation and tending all achieved, or exceeded planned targets (when adjusted for lower-than-planned harvest achievements). The only aspect of renewal not achieved was natural regeneration. This is attributed to underachievements in harvesting under the shelterwood system, due to lack of suitable markets for white pine and tolerant hardwood during the FMP term, and the fact that the Company has fallen behind in completing the surveys used to assess and report on natural regeneration areas. The audit contains a recommendation to ensure the balance of unreported natural regeneration is carried forward to the next FMP term to so that the need to report on and verify the natural regeneration is not lost.

The Company has developed an excellent monitoring program to support its silviculture program and to evaluate effectiveness. Field surveys are conducted at various stages in the management of a stand with the end result of creating an excellent knowledge base for understanding the effectiveness of silvicultural treatment packages and the succession of treated stands. The audit team identified this as a best practice.

Harvest levels for the review period were significantly less than planned – only about 66% of the planned area of harvest was achieved. This was attributable to a strike by forestry staff for six months in 2000, a strike at the Nairn sawmill in late 2000 to May of 2001, closure of the Espanola mill for modification for four months in 2001, and a shift to shortwood harvesting beginning in 2002-03 which led to less wood flowing to the sawmill and more wood going to the Espanola pulp mill. Harvest bypass was identified as an issue by the audit team, and a recommendation related to AWS plan development was made to help reduce the amount of bypass and provide more accurate estimates of the actual planned harvest levels each year. It is estimated that the actual harvest volume was 64 – 65% of planned, which is in line with the analogous harvest area figure.

There were some issues related to utilization that surfaced in this audit, however for the most part they are fairly transient in nature and are being resolved.

Several aspects of access management were identified by the audit team as important in this audit. These included – management of the east and west branch bridges over the Spanish River (a situation which the audit team believes is being managed well by the MNR), the need for closure on the issue of ownership and liability of forest access roads, and the need for improved maintenance of access roads and bridges. These topics are dealt with in several recommendations in the audit report. Somewhat disappointing to the audit team is that these, or similar access-management issues were identified in the previous audit, but the related recommendations remained at least partially unaddressed.

Ontario's forest management planning process requires that future habitat supply for some representative species of wildlife be simulated using SFMM - the computer model which makes comparable projections for wood supply. The acceptable bounds of sustainability identified by the MNR for this exercise are very broad. The simulation results for both the 2000 and 2005 FMPs show declines in habitat for most of the selected wildlife species, and in the 2005 FMP projected habitat levels fell below any level simulated in a benchmark run intended to predict how the forest would behave in the absence of human disturbance. In spite of these very extensive and deep declines in projected habitat for some species, they fall within the bounds of sustainability as identified by the MNR. The audit team has concerns that the MNR-defined bounds of sustainability are too broad and this audit includes a recommendation for the MNR to revisit its definition of sustainability in this regard.

Compliance monitoring on the Forest has been undertaken unevenly by the three MNR districts with management responsibilities. In addition, the compliance planning efforts have been uneven. It is clear that the status quo of having three districts independently involved in compliance planning and monitoring for the Forest is not working smoothly. This audit includes a recommendation that the Sudbury District take the lead in writing a Spanish Forest Annual Compliance Operations Plan containing relevant analysis, consistent coordinated direction, and specific quantitative compliance targets for the Spanish Forest for 2006-2007 and annually thereafter.

Overall, this audit found that management of the Spanish Forest was in substantial compliance with the laws, licences and Forest Management Plans in effect during the audit period, and that the Forest is being managed within the bounds of sustainability as defined and directed by the Ministry of Natural Resources. The audit team recommends extending the term of the Sustainable Forest Licence held by Domtar for a further five-year period.

Chris Wedeles, Lead Auditor

2 INTRODUCTION

This document presents the results of the Independent Forest Audit (IFA) of the Spanish Forest Management Unit, covering activities during the period April 1, 2000 to March 31, 2005. The audit was undertaken by a team of professionals following the direction of the Ontario Ministry of Natural Resources' (MNR) Independent Forest Audit Process and Protocol[1] (IFAPP).

There is a reasonably long history of industrial tenure over what is now the Spanish Forest. Most recently, prior to the existence of the present Spanish Forest, the area was managed under two separate Forest Management Agreements and deemed SFLs as the Upper Spanish Forest and the Lower Spanish Forest. These forests were officially merged to create the present Spanish Forest (SFL #542391) in 2002, however with the consent of the MNR under the 2000 Forest Management Plan (FMP), the forests were being managed together prior to their official amalgamation. The 2000 FMP was in effect for the dates covered by this audit (i.e. April 1, 2000 to March 31, 2005). A new FMP came into effect on April 1, 2005.

The audit covers all forest management and planning activities which took place during the review period. Therefore, included in the audit are all operations on the forest implemented under the 2000 FMP and the process of developing the 2005 FMP. This audit also examines the content of the 2000 FMP. Although a review of the content of the 2005 FMP is beyond the scope of this audit, we did examine the 2005 FMP to review how issues which arose in our review of the 2000 FMP were being dealt with in the subsequent plan.

The audit also reviews and assesses the activities of the Ontario Ministry of Natural Resources related to management of the Spanish Forest. The MNR is the provincial Ministry with the primary responsibility for managing the province's Crown forests and, as such, it oversees and regulates planning and operations on the Spanish Forest. The MNR also has management responsibility for wildlife. Sudbury District, is the lead District for the management of the Spanish Forest, although the Forest extends into parts of Chapleau District and Timmins District as well.

Timber harvesting has taken place in the area now encompassed by the Spanish Forest for over 100 years. The 2000 FMP provides a brief history of the tenured management of the Spanish Forest: "The Upper Spanish Forest and Lower Spanish Forest were at one time licensed under a Timber Concession Agreement between the Minister of Lands and Forests and the Kalamazoo Vegetable Parchment (KVP) Company. This agreement was signed May 26, 1944. The KVP Company had recently acquired the groundwood mill owned by the Abitibi Power and Paper Company Limited in Espanola. KVP rebuilt the Espanola mill as a Kraft pulp mill and operated the facility until its sale to the Brown Corporation in 1966. In 1969, George Weston Limited purchased all Canadian operations of Brown Corporation and operated the facility under the name of E. B. Eddy Forest Products Ltd. Effective July 31, 1998 Domtar Inc. completed the purchase of E.B. Eddy from George Weston. Domtar Inc. is responsible for, all forest management activities on the Spanish Forest including forest management planning, the functions of harvesting, silviculture, renewal, delivery of fibre, proactive management of policy issues and key relationships with forest stakeholders. The forest management planning group operates on a regional basis out of Domtar's centralized head office in Timmins. Domtar also has operations staff in its office in Nairn Centre.

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[1] Ontario Ministry of Natural Resources. 2005. Independent Forest Audit Process and Protocol. Queen's Printer for Ontario.

The Crown Forest Sustainability Act (CFSA) empowers the Minister of Natural Resources to manage Crown forests in Ontario and also provides the legislative basis for the Independent Forest Audits. The scope and process of an IFA is set out in the IFAPP. The IFAPP, which is reviewed and updated annually, contains more than 300 individual audit procedures. Of these, roughly 250 apply to this IFA.

The results of each audit procedure are not reported separately in this report. Rather, they have provided the basis for the information in the following sections (primarily Section 3). In the following sections, noteworthy aspects of the management of the forest are discussed. These discussions are followed in some instances by recommendations or suggestions. The IFAPP gives explicit definitions of these terms:

Recommendation - "sets out a high level directional approach to addressing a non-conformance. In most cases, recommendations follow from the observation of material non-conformances. In some instances, however, auditors may develop recommendations to address situations where they perceive a critical lack of effectiveness in forest management activities, even though no non-conformance with law or policy has been observed."

Suggestion - "value-added advice which reinforces adaptive resource management and contributes to continuous improvement."

Of these two types of findings, recommendations are the more serious. Both recommendations and suggestions can be directed towards the Company and/or the Ministry of Natural Resources. Finally, if the Audit Team feels that an aspect of forest management is exceptional it may be identified as a best practice. The IFAPP provides the following definition:

Best practices – "practices so identified should be 'exceptional', not situations in which forest management is simply meeting a good forest management standard. Highly effective novel approaches to various aspects of forest management may represent best practices. Similarly, applications of established management approaches which achieve remarkable success may represent best practices."

The Audit Team found situations which should be corrected by the tenure holder acting in concert with district or regional MNR offices. Other situations which we believe need corrective action, however, are more appropriately addressed by the corporate sections of MNR. These situations involve issues related to the general framework of forest management in Ontario, and although they have been manifested locally (hence, they surfaced in this audit), their resolution lies not in the field offices of MNR, but in the Main Office, Forest Management Branch, or other corporate parts of MNR. Issues which we believe should be addressed by the field units of MNR (i.e. District or Regional Offices) are addressed in recommendations or suggestions which simply identify "MNR". Recommendations or suggestions which we believe should be addressed by central branches or sections of MNR identify "corporate MNR" as having primary responsibility.

The team which conducted this audit consisted of five individuals, all experienced forest auditors, and all specialists in forest management. Appendix B provides details of their qualifications, roles and responsibilities.

Forest management in Ontario (and elsewhere) uses a variety of technical terms. We have tried to explain terms as they are used in this document, but readers unfamiliar with the forest management planning process in Ontario are referred to the document "A Guide to Forest Management Planning"[2] (available from the Ministry of Natural Resources) for further explanations. Appendix D lists the acronyms used in this report.

2.1 AUDIT PROCESS

2.1.1 Purpose and overview of the process

The CFSA directs the Minister of Natural Resources to conduct a review of each tenure-holder every five years to ensure that the licensee has complied with the terms and conditions of its licence. The Independent Forest Audit fulfils this mandate, as well as complying with the direction to the Ministry laid out in Terms and Conditions #86 and 87 and Appendix 25 of the 1994 Class EA decision[3] to "*undertake operational audits, through the appointment of suitably qualified independent audit teams, which will include an assessment of compliance with the timber management planning process, approved Timber Management Plans, implementation manuals, and provincial policies, procedures, and legislation*". The Declaration Order[4] confirmed the importance of the IFAs and imposed some additional conditions on MNR; direction regarding the conduct of the audits is provided in Ontario Regulation 160/04 under the CFSA.

The IFAPP document states that the purpose of the audits is:

- *"assess to what extent forest management planning activities comply with the Forest Management Planning Manual and the [Crown Forest Sustainability] Act;*
- *assess to what extent forest management planning activities comply with the Act and with the forest management plans, with the manuals approved under the Act, and the applicable guides;*
- *assess the effectiveness of forest management activities in meeting the forest management objectives set out in the forest management plan, as measured in relation to the criteria established for the audit;*
- *compare the forest management activities carried out with those that were planned;*
- *assess the effectiveness of any action plans implemented to remedy shortcomings revealed by a previous audit; and*
- *review and asses a licensee's compliance with the terms and conditions of the forest resources licence."*

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[2] Ontario Ministry of Natural Resources. 1997. A Guide to Forest Management Planning. Ontario Ministry of Natural Resources Forest Information Series. 16 p.

[3] Koven, A. and E. Martel. 1994. Reasons for Decision and Decision – Class Environmental Assessment by the Ministry of Natural Resources for Timber Management on Crown Lands in Ontario. Ontario Environmental Assessment Board.

[4] Declaration Order regarding MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario, approved by Order in Council 1389/03 on June 25, 2003.

2.1.2 Process

The IFAPP describes each of the components of the audit process and contains the audit protocol, which constitutes the main framework for the audit. There are eight principles within the audit protocol (reproduced in Appendix C). Each principle contains a series of criteria, which, if met, will result in the principle being achieved. For each criterion, a number of procedures are used to assess the auditees' compliance and effectiveness. As noted above, there are approximately 250 individual procedures that are applicable to this audit of the Spanish Forest.

The audit commenced with the preparation of a detailed audit plan[5], which described the procedures to be used during the audit and assigned responsibilities to members of the Audit Team. A pre-audit meeting was held between representatives of the Audit Team, Domtar Inc., the Ministry of Natural Resources and the Local Citizens' Committee (LCC). The primary purposes of the meeting were to familiarize the auditees with the audit process, review the Audit Plan, and to select the sites to be inspected in the field during the audit.

The focus of the audit was an intensive six-day visit, which included the following:

- Review of relevant files at the offices of the Company in Timmins and Nairn Centre, and at the Offices of the Ministry of Natural Resources in Sudbury and Espanola;
- Interviews with Domtar Inc. staff, commitment holders and overlapping licensees, MNR personnel, First Nations individuals, and members of the LCC; and
- Field inspection of many representative sites where forest management activities were undertaken during the term covered by the audit, examining:
    - Results of harvesting and silvicultural operations in a range of forest types on different site types;
    - Results of practices intended to safeguard wildlife, aquatic, and tourism values; and
    - Results of road construction, maintenance and abandonment practices.

Table 1 shows the sample size and sampling intensity for key operations. The IFAPP requires that audits sample between 10 and 20% of the area treated during the audit period for harvesting, site preparation and other key activities. The audit was within, or exceeded this desired sample size for all activities. In **Table 1**, the sample intensity refers to the proportion of the total activity undertaken from April 1, 2000 to March 31, 2005 which was sampled during the audit.

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[5] ArborVitae Environmental Services Ltd. Spanish Forest Independent Forest Audit Plan, June 21, 2004.

Table 1. Sampling Intensity of the Audit

Feature	Total in Audit Period	Total Sampled	Sample Intensity %
Harvest (ha)	41,089	9,193	22.4
Site Preparation (ha)	21,220	3,142	14.8
Natural Regeneration (ha)	7,782	1,210	15.5
Artificial Regeneration (ha)	22,788	3,782	16.6
Tending (ha)	27,052	3,167	11.7
Free-to-Grow Surveys (ha)	33,080	4,127	15.5
2003 FRT Areas (ha)[a]	12,806	2,743	21.4
Areas of Concern (no.)	approx. 600	76	approx. 12.5
Roads (Km) (all classes)[b]	approx. 600	250	approx 42.7
Bridges[c]	approx. 30	10	approx. 33.3

[a] - Indicates the area of sites reviewed as part of a financial "specified procedures" review for all Forest Renewal Trust areas in 2003. The IFAPP requires that the IFA sample at least 20% of these areas.

[b] - In total the audit team drove on over 800 km of access roads (including roads constructed during the audit term, and previously-constructed roads) during the site visits.

[c] - Many additional culverts were inspected on an ad-hoc basis during the site visits

Table 1 is intended to portray an approximate level of effort only. There are several factors which preclude too-precise an interpretation of the figures presented in the tale. Although roughly 55 stops were made during the field inspection portion of the audit, more than one aspect of forest management was inspected at most stops. For example, at stops where harvesting had taken place, harvesting practices, compliance issues, road construction, Area of Concern (AOC) protection, site preparation, and regeneration activities may all have been inspected. Finally, although areas are shown in **Table 1**, it should be noted that we did not inspect every hectare of the blocks we visited – such a level of effort would be infeasible.

Examples of operations were examined in each major forest unit present on the Forest, representing a range of harvesting systems, harvest operators, and silvicultural treatment packages. These included sites that had been harvested in the audit period using clearcut, shelterwood harvest and seed tree harvest systems. A number of sites where renewal activities had been conducted during the audit period were visited to evaluate the appropriateness and quality of these treatments and to perform an initial evaluation of their effectiveness. These included sites that were site prepared, planted, seeded and those for which natural regeneration was reported.

Figure 1 shows the location of sites visited during the audit. Some additional sites, inspected ad hoc, during the course of the field visits are not shown on the map.

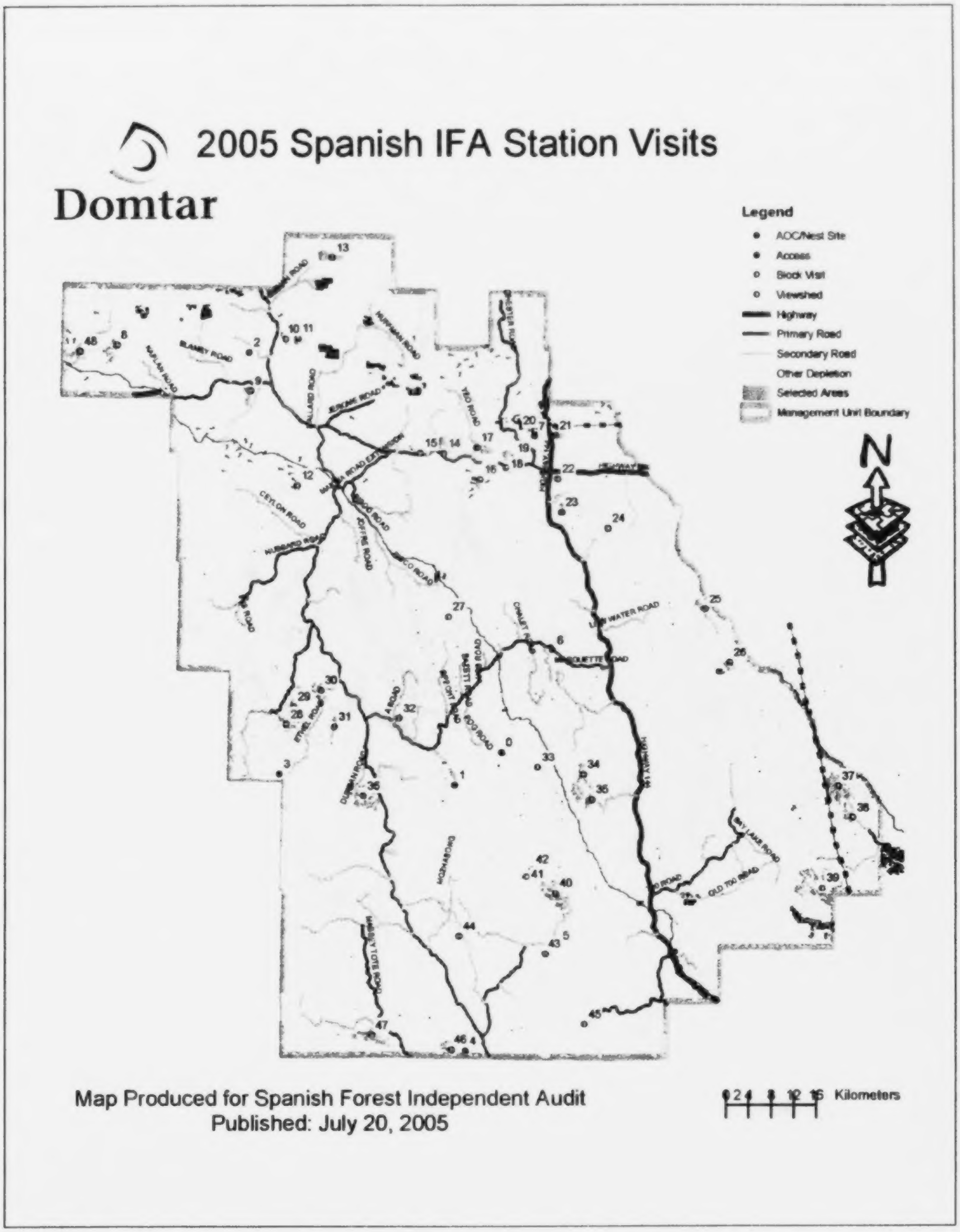
2005 Spanish IFA Station Visits
Domtar
Legend
AOC/Nest Site
Access
Block Visit
Viewshed
Highway
Primary Road
Secondary Road
Other Depletion
Selected Areas
Management Unit Boundary
N
CEYLON ROAD
LOW WATER ROAD
MARQUETTE ROAD
JEROME ROAD
OLD 700 ROAD
0 2 4 8 12 16 Kilometers
Map Produced for Spanish Forest Independent Audit
Published: July 20, 2005

Figure 1. Locations of planned sites visited during the audit's field inspection. (Several additional sites were visited ad hoc). Map supplied by Domtar Inc.

2.2 FOREST MANAGEMENT CONTEXT

2.2.1 *Location of Forest Management Unit*

The Spanish Forest is located in north-central Ontario (Figure 2). It's southeastern border is approximately 40 km northwest of the town of Sudbury, and it occupies approximately 1.2 million ha of land in the midst of a triangle formed by Timmins, Elliot Lake and Sudbury. Main vehicular access to the Forest is provided by Highway 144 which runs approximately between Timmins and Sudbury.

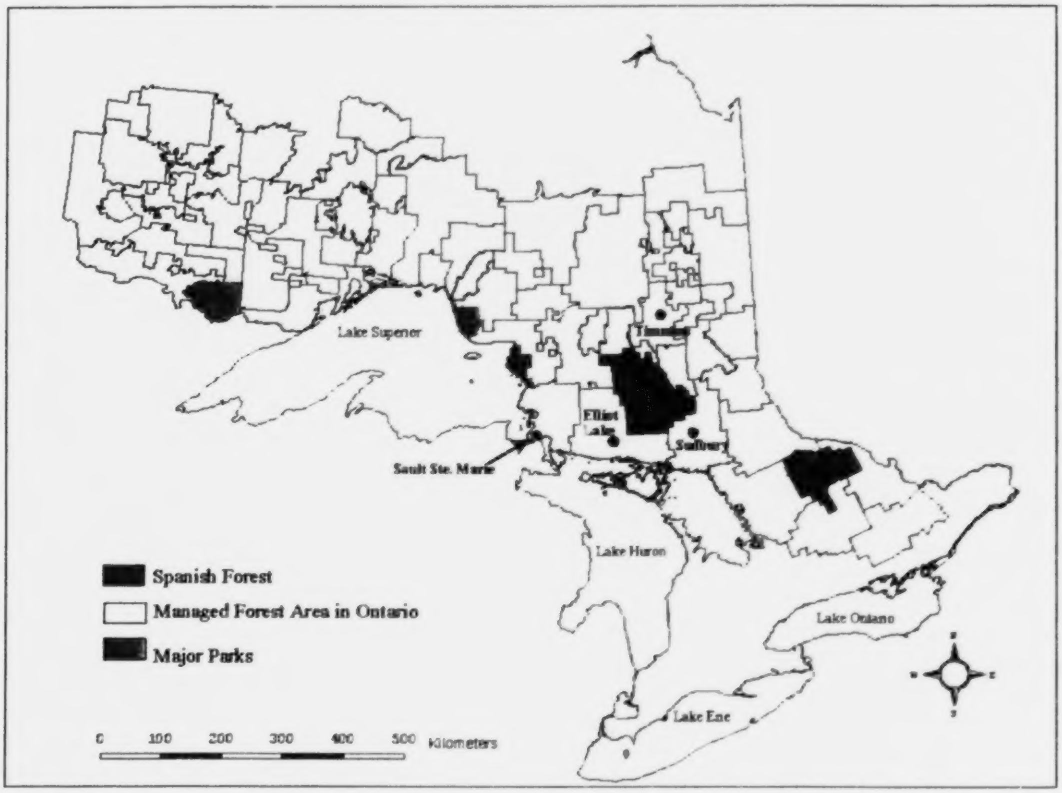
Lake Superior
Timmins
Elliot Lake
Sudbury
Sault Ste. Marie
Lake Huron
Lake Ontario
Lake Erie
Spanish Forest
Managed Forest Area in Ontario
Major Parks
0 100 200 300 400 500 Kilometers

Figure 2. Location of the Spanish Forest.

2.2.2 *Brief Description of the Spanish Forest*

This section presents an overview of key characteristics of the Spanish Forest – more detailed description can be found in the 2000 and 2005 FMPs, which were the source of much of the material presented here.

According to table FMP-1 of the 2000 FMP, the forest encompassed 1,295,493 ha, of which more than 99% was Crown Land[6]. The remaining less than 1% is in private ownership. Of the Crown land area, approximately 90% was classified as Crown

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[6] The 2005 FMP reports slightly different areas for all land classes due to inventory modifications. For the purposes of this report, we will cite the 2000 FMP areas, as that plan provided the basis for the audit.

Managed land, and approximately 10% was in Parks and Conservation Reserves.

Table 2 shows the area of managed Crown land in various land classes as indicated in the 2000 FMP. Of the Forest's total area of Crown land area, approximately 84% was classified as production forest (land capable of supporting forest management).

Table 2. Managed Crown Land Area of Spanish Forest by Land Class (ha). (Source: 2000 Spanish forest FMP, Table FMP-1)

Land Class	Area (ha)	Percentage[a]
Water	95,815	8.2
Non-forested and unsurveyed land	4,065	0.3
Non-Productive Forest[b]	78,838	6.7
Protection Forest[c]	12,308	1.1
Production Forest[d]	977,672	83.7
Total Forested Area	1,068,818	91.5
Total Managed Crown Land Area	1,168,698	100

[a] – Percent of total managed Crown land area

[b] - Non-productive forest includes areas incapable of growing commercial tree, such a muskeg, rock, brush, etc.

[c] – Protection forest includes forests on sensitive soils and islands.

[d] – Production forest is land capable of supporting forest management.

Table 3 shows the area of managed Crown forest that was available for commercial forestry operations, by forest unit according to the 2000 FMP. The total area shown in Table 3 is less than the area of production forest indicated in Table 2, because production forest area in parks, other unmanaged Crown lands, and protection forest, is excluded from the available Crown managed landbase.

Table 3. Area of Available Crown Managed Forest (ha). (Source 2000 FMP, Table FMP-3)

Forest Unit	Available Crown Managed Forest	Percentage[a]
Tolerant Hardwood Selection (HSE)	3,445	0.4
Tolerant Hardwood Shelterwood (HSH)	13,849	1.6
Mixed Hardwood – White Birch (MHBW)	96,021	11.3
Mixed Hardwood – Poplar (MHPO)	98,061	11.5
Mixed Conifer (MXCON)	208,693	24.4
Mixedwood (MXWD)	200,413	23.5
Other Conifer (OCON)	12,549	1.5
Jack Pine Pure (PJPUR)	120,964	14.2
Red Pine Pure (PRPUR)	5,041	0.6
White and Red Pine Shelterwood (PWRSH)	20,140	2.4
White and Red Pine Seedtree (PWRST)	11,380	1.3
Black Spruce Lowland (SBLOW)	61,584	7.2
TOTAL	852,140	100

[a] - Percent of available Crown managed forest

Conifer-dominated stands are most prevalent in the Spanish Forest, comprising approximately 52% of the forest unit area, hardwood-dominated stands comprise approximately 25%, and mixed conifer-hardwood stands comprise approximately 24%. Figure 3 shows that the forest has a very mature character, with the 81-100 year age class predominating for every forest unit, and relatively little area of the forest in age classes less than 60, or greater than 100 years. Only approximately 25% of the forest is identified as being less than 60 years, and less than 13% is greater than 100 years. This compressed age class distribution is likely a function of forest harvesting and relatively successful forest fire suppression in recent decades.

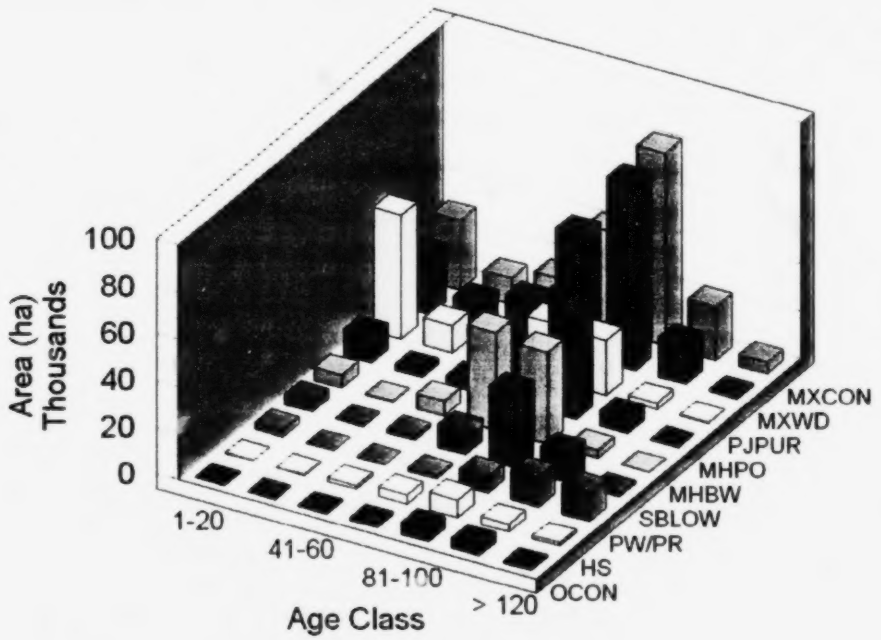

Figure 3. Age Class Distribution of Crown Managed Productive Forest by Forest Unit.(Source 2000 FMP, Table FMP-9) See Table 3 for full names of forest units.

Historically, fire and insect infestation have been the main forest disturbances in the Spanish Forest area. The extent of fires on the Forest has decreased in recent decades in response to fire suppression. The 2005 FMP discusses historic forest fire records which suggest that on average less than 1% of the forest burned each year in the era between the onset of commercial forest harvesting and effective fire suppression. The 2005 FMP also notes that the average annual burn rate in the era after effective fire suppression began is approximately 0.03%. In other words, for every 10,000 ha of the forest, only 3 ha would burn on average, every year.

The Spanish Forest has experienced epidemics of spruce budworm and jack pine budworm in recent years. The last outbreak of spruce budworm was in the early 1970's and is thought to be responsible for a marked reduction in balsam fir on the forest (inventory data from the early 1970's indicates that more than 40,000 ha of balsam fir existed on the Forest, whereas now it accounts for only about 3,800 ha of forest area. The most recent outbreak of jack pine budworm occurred in the early 1990's and affected almost 100,000 ha of forest.

Like all Ontario forests, the Spanish Forest supports a variety of wildlife species that depend on a mosaic of forest habitats. Many of the species common to the Forest are highly valued for providing recreational opportunities such as hunting and viewing, and commercial opportunities such as trapping. Moose is the prime game species in the Forest, and is managed as a featured species on the forest. Deer (in the southern portion of the forest) and black bear are also important game species on the forest.

The Forest also provides habitat for many non-game wildlife species, including scores of species of songbirds, birds of prey, small mammals, salamanders, etc. The 2005 FMP reports that the only vulnerable, threatened, or endangered (VTE) species with identified habitat within the boundaries of the Spanish Forest is the bald eagle. Although occasional sightings of peregrine falcon, great gray owl and golden eagle have been reported over the years, no confirmed nesting sites are on record. It is believed that the sightings are more associated with seasonal/periodic migrations than with habitat provided within the Spanish Forest. No VTE plants, invertebrates, fish, amphibians, reptiles, or mammals have been documented to date.

The Spanish Forest is also rich in aquatic resources, which support a diversity of fish species and community types. The fisheries represent an important resource within the Spanish Forest, providing recreational opportunities including remote as well as drive-in angling, commercial opportunities including tourist outfitting and bait fish harvesting, and opportunities for subsistence harvest by First Nation communities. The aquatic resources are part of broader tourism values on the Spanish. On the forest, there are 19 canoe routes – many of which are well developed, a number of baitfish operators, 60 bear management areas (in whole or in part on the Spanish Forest), 12 lakes with cottages, a number of private recreation camps and hunt camps, and approximately 40 tourism based industries (outfitter camps, guide services, etc.).

2.2.3 Relevant management issues

Several of the broader management issues that affect the Spanish Forest, and create challenges for forest managers, are briefly described in this section – these issues re-appear in various places throughout the report, indicating that they are important issues with complex direct and indirect impacts.

Shared Management Responsibility

The MNR's responsibilities in managing some aspects of the Spanish Forest, and overseeing management of other aspects are shared amongst three Districts – Chapleau, Timmins, and Sudbury. Sudbury has been designated as the lead district, with staff in the Espanola Area Office having primary responsibility. MNR staff in the Sudbury office are dedicated and thorough in carrying out their responsibilities, but the fact that administration is dispersed through the three districts has led to some imbalances in management activities. This is most evident in relation to compliance activities where a disproportionate amount of compliance monitoring by MNR takes place in the Sudbury portion of the Forest. This is discussed more fully in Section 3.6.1.

Non-timber Uses of the Forest

The Spanish Forest is blessed with a richness of valued resources other than timber, including waterways for recreational purposes and a hinterland which is reasonably accessible to centres of population. At times it is challenging for such uses of the forest to occur in harmonious juxtaposition to commercial forestry operations and the infrastructure required to facilitate access to the timber. This has led to a persistent low-level degree of tension between non-timber users and commercial forest operations. Commercial forest management has a long history in the Spanish Forest, and over time mechanisms have been developed to manage the co-existence. It is apparent, however that the company and the MNR needs to remain vigilant of the need to be proactive in dealing with non-timber interests in order to continue to foster a reasonably peaceful coexistence of parties.

Access

Related to the above topic in some ways, several aspects of access management were identified by the audit team as important in this audit. These included management of the east and west branch bridges over the Spanish River (a situation which the audit team believes is being managed well by the MNR), the need for closure on the issue of ownership and liability of forest access roads, and the need for improved maintenance of access roads and bridges. These topics are dealt with in several recommendations in the audit report.

Harvest Control

A number of issues related to harvesting were identified in the audit, all of which were known and being acted on by the Company, but which nevertheless indicated that forest managers face many challenges. Changes to the mill, which affected the log lengths and utilization, labour strikes and constraints imposed by labour agreements, and concerns on the part of other hardwood using companies featured as issues in this audit. In order to obtain maximal operating flexibility, areas were allocated in the Annual Work Schedules (AWS) that were much larger than what was actually cut, and this tends to undermine the purpose of the AWS.

3 SUMMARY OF AUDIT FINDINGS

3.1 COMMITMENT

An assessment of commitment to Sustainable Forest Management (SFM) is based on a review of written statements that speak to a commitment to SFM (*e.g.* policy documents, legislation, regulations, *etc.*) and demonstrable actions of SFM (*e.g.* communication, planning, operations, monitoring, reporting, *etc.*). There are six procedures in the IFAPP to assess commitment of both the MNR as the regulatory agency, and Domtar as holder of the SFM licence.

At the corporate level the MNR and Domtar each have written statements that demonstrate a commitment to SFM in policy documents that have been approved by senior members of the respective organizations. In the case of MNR there are documents such as the Policy Framework for Sustainable Forests, Beyond 2000, Ontario's Framework of Forest Policy and Authority and the legislation of the Crown Forest Sustainability Act. On the part of Domtar there is an "Environmental Policy" and "Forest Policy". The 2005 FMP also acknowledges MNR policies and legislation and includes statements and planning activities that address SFM.

MNR staff were knowledgeable of their corporate policies and legislation related to SFM. The public display or promotion of materials related to SFM in the form of corporate policies, public information pamphlets and posters was not, however, readily evident in the Espanola or Sudbury offices of the MNR. As the MNR does produce public information documents related to SFM and maintains a comprehensive website with considerable SFM information resources, efforts should be made towards greater encouragement of public use of these recourses.

Suggestion # 1

The MNR Espanola and Sudbury offices should display MNR corporate policy materials related to SFM and make available documents that assist the public in understanding SFM, including documents that explain the role of the public in the SFM planning process.

Domtar staff were able to refer to corporate environmental and forest policies and their Environmental Management System (EMS) employee handbook which contains a summary of the Forest Policy. Domtar implementation of an EMS includes training activities that ensure all Domtar staff and contractors are fully informed of SFM policies and legislation and the mechanisms by which these are implemented through the collective actions of individuals. The EMS reinforces these messages on an annual basis with all staff and contractors and assesses the success of EMS training through conducting environmental audits.

A commitment to SFM is verified through monitoring the implementation of the FMP. Monitoring confirms adherence to the approved practices of the FMP and determines the effectiveness of these practices in achieving desired SFM outcomes. Monitoring provides the critical step that initiates adaptive management actions in the pursuit of SFM. Domtar's internal EMS audit process includes the identification of actions necessary to improve deficiencies where found and further follow-up to ensure the identified actions are carried out.

Domtar has produced written materials on SFM to inform the public of their activities and they conduct tours of their operations to allow the public to see and understand first hand the implementation of SFM practices.

3.2 PUBLIC PARTICIPATION

3.2.1 Local Citizens Committee

A Local Citizens Committee (LCC) was established by the Sudbury District MNR in January 1998 to provide advice on the preparation and implementation of the Spanish Forest FMP. The LCC has adopted a Terms of Reference (TOR). The copy provided was not dated, nor did it have a list of members showing their respective dates of appointment to LCC. The outline of roles and responsibilities of the LCC are currently being updated in a revised TOR following the guidelines of the 2004 FMPM. Several minor deficiencies that were noted and which should be addressed in the current effort to update the LCC Terms of Reference include: clear statement of responsibility to prepare minutes; clearly stated procedural rules; and representation of groups on the LCC sufficient to meet the guidance provided by the MNR in the FMPM.

Suggestion # 2

The revised Terms of Reference for the LCC should address the minor deficiencies in the present ones. The revisions should include a clear statement of responsibility for preparation of meeting minutes, clear procedural rules, the requirement to attempt to include membership as described in the Forest Management Planning Manual, and an annual review of membership.

The number of LCC meetings, as determined by documentation available to the audit team, held during the audit period is shown in Table 4. The number of meetings showed a continual increase over the audit period, consistent with the increasing activity associated with the development of the 2005 FMP. During interviews, some members made comments that in some instances during meetings the views of the Forest Industry carried greater weight than other interests. Interviewees also suggested that this situation had much improved and was no longer of concern.

Table 4. Record of LCC Meetings and Attendance at Meetings as determined by documentation available to the audit team.

Year	# of LCC meetings	# of LCC meetings with a quorum
2000	3	3
2001	4	3
2002	6	4
2003	7	6
2004	9	9
Average	6	5

Most groups represented on the LCC showed a regular pattern of attendance at LCC meetings. However, notable was the regular absence of representation of First Nations. MNR staff and LCC members assured the audit team that significant efforts are made to encourage First Nations participation.

There was also little evidence of LCC participation or involvement by any of the three MNR District Managers (Sudbury, Chapleau, Timmins) overseeing the Spanish Forest. Committee members also indicated that District Managers do not have a strong record of appearance at meetings, nor obvious involvement with the committee. As the LCC represents an excellent source of public information and opinion, and is ultimately a tool to advise the MNR District Managers, it would be expected that District Managers would wish to both affirm the important role of the LCC and use the input coming from this group of dedicated volunteers. As Sudbury is the lead MNR District for management of the forest, it is reasonable to expect that the Sudbury District Manager would take the lead in this capacity.

Suggestion # 3

The MNR Sudbury District Manager should become more involved with the LCC.

The LCC has participated in the development of the 2005 FMP through the appointment of a LCC member to the planning team, through participation in the development and analysis of management alternatives, contribution to the development of values maps, through the development and presentation of public open house materials and involvement in issue resolution.

The LCC has expressed an interest in participating in special meetings to gain a better understanding of SFM. These meetings may be specific to the Spanish Forest LCC or undertaken as part of regional LCC meetings. A regional LCC meeting that had been planned was cancelled in 2005, due to MNR budgetary constraints. Regional workshops have been held in several previous years and have been well-received by LCC representatives who have attended. LCC members expressed a strong desire to see that the regional meetings continue to be sponsored by the MNR. MNR staff assured the audit team that in spite of the cancellation of the 2005 meeting, the events are viewed as important by the MNR.

Suggestion # 4

MNR should continue to place a high priority on providing logistical and financial support to host regular (annual) regional/inter-regional LCC workshops/meetings.

3.2.2 FMP Standard Public Consultation Process

The FMPM outlines the required timing and distribution of notices for each stage of the FMP process. The MNR files for Public Consultation on the Spanish Forest for the 2005 FMP were poorly organized, making it impossible to follow how public consultation efforts were implemented through the planning process. In particular, file materials did not provide evidence of publication dates for public notices in the files and in some cases no public notices were available. While it is likely the MNR has followed the requirements of the standard public consultation process, maintaining careful records both ensures the public receives adequate notification of all FMP planning stages (*e.g.* Invitation to participate, 1st / 2nd Information Centres, Draft Plan Review, Plan Inspection) and demonstrates due diligence on the part of MNR for auditing purposes.

Recommendation # 1 identifies the need to improve the document control processes of the MNR and is intended to apply to the situation described above, and other circumstances described in Section 3.2.3

3.2.3 Native People's Consultation

A review of MNR files suggests it is unclear which First Nations are to be consulted during preparation of a Spanish Forest FMP. Although there are no First Nation reserves on the Spanish Forest itself, based on a list of 14 First Nation contacts provided to the IFA team and an examination of MNR files and correspondence, it was determined that a total of 16 First Nations may have an interest in the Spanish Forest (Table 5).

Table 5. First Nations contacted during Forest Management Planning on the Spanish Forest based on MNR records.

First Nation	Location
Aundek Omni Kaning First Nation (previously Sucker Creek First Nation)	Little Current
Brunswick House	Chapleau
Chapleau Cree First Nation	Chapleau
Chapleau Ojibways First Nation	Chapleau
Mattagami First Nation	Gogama
M'Chigeeng First Nation (previously West Bay First Nation)	West Bay
Mississaugi First Nation	Blind River
Sagamok Anishnawbek	Massey
Serpent River First Nation	Cutler
Sheguiandah First Nation	Sheguiandah
Sheshegwaning First Nation	Sheshegwaning
Wahnapitae First Nation	Capreol
Whitefish Lake First Nation	Naughton
Whitefish River First Nation	Birch Island
Wikwemikong Unceded Indian Reserve	Wikwemikong
Zhiibaahaasing First Nation (previously Cockburn Island First Nation)	Silverwater

At the initiation of the 2005 FMP planning process for the Spanish Forest a total of 13 First Nations were initially contacted. During the planning process for the Spanish Forest 2005 FMP, four First Nations expressed their interest to participate in the Special Native Consultation Program, this included the Serpent River First Nation, Mattagami First Nation, Sagamok First

Nation and Mississaugi First Nation. Two of these First Nations were not among the 13 First Nations initially contacted by the MNR.

The Special Consultation Program with First Nations has several requirements regarding providing notices and holding native community meetings to ensure additional efforts have been made by the MNR to facilitate First Nations inclusion in the FMP public consultation process. Equally, the Standard Consultation Program with First Nations has requirements in regard to ensuring adequate consultation efforts have been made. Unfortunately, the MNR has not maintained adequate files for Native Peoples Consultation on the Spanish Forest to determine whether or not sufficient efforts were made to ensure all First Nations were properly consulted.

It is acknowledged that MNR did hold special meetings as part of Special Consultation Programs with some First Nations and that efforts were made by MNR to ensure First Nations were included in the FMP consultation process. Nonetheless, without an adequate system of tracking consultations at each step in the FMP process, it is conceivable that some First Nations may not have received all of the notices to participate in and/or review the FMP documents, particularly given the large number of First Nations that have an interest in the Spanish Forest.

We believe there are two interrelated issues here. The first is that the MNR's records of their consultation program and efforts are poor. This is addressed in Recommendation # 1. The second issue is that there is a degree of uncertainty in identifying just which First Nations have a legitimate interest in the Spanish Forest. This uncertainty is frustrating for company staff, as they bear responsibility for dealing with First Nations in aspects of forest management, and not knowing definitively which First Nations are to be included makes their job more difficult. The fact that there may be 16 First Nations with an interest in the Spanish Forest, while none have a reserve on the Forest is striking to company staff. The Forest Management Planning Manual does not provide definitive direction on this issue as it identifies interested Aboriginal Communities as those "in or adjacent to the management unit whose interests or traditional uses may be affected by forest management activities. " The audit team recognizes that this is a difficult issue for the MNR to deal with, however we believe that a more definitive reckoning of this should be undertaken. This is dealt with in Recommendation # 2.

Recommendation # 1

MNR Should review its record-keeping practices related to public and First Nations Consultation and develop and implement a process to accurately record the measures taken during these portions of the Forest Management Planning Process.

Recommendation # 2

The MNR should develop an official list of "interested" First Nations for the Spanish Forest, identify the criteria used to determine whether a First Nations community qualifies as "interested", and advise the company whenever the list is updated.

In addition, while there is a First Nations newspaper that is widely circulated among many of the First Nation communities associated with the Spanish Forest, it does not have a regular publication schedule and so is not always available at appropriate dates to provide notices regarding various aspects of forest management and forest management planning. The audit team encourages the MNR to continue to continue to investigate use of First Nations newspapers and to make use of them when appropriate relative to the schedule of forest management activities.

Suggestion # 5

The MNR should continue to attempt to make use of First Nations newspapers to advertise forest-management related activities.

3.2.4 Annual Work Schedule Public Inspection

The preparation of Annual Work Schedules (AWSs) prior to the commencement of operations allows the public and First Nations an opportunity to review what activities will be occurring on the Forest in the coming year. Information of particular interest to the public and First Nations includes access construction, the timing and location of harvesting aerial spraying, renewal and tending operations that may provide local employment, the timing and location of slash pile burning, and the availability of public fuelwood, *etc.*

Due to a lack of adequate document control during the audit period, the IFA team was unable to determine if written notices of the availability of approved AWSs for public review were issued at least 15 days prior to the commencement of scheduled operations each year. As part of the AWS there may be aerial herbicide application projects and slash burning projects provided at the beginning of the year or appended at a later date. In either case there are requirements for notification of the public and First Nations for these projects. Again, it has not been possible for the Audit Team to confirm all required notices met the requirements of the FMPM. In addition, the First Nations newspaper was not used for any notifications.

As noted above, Recommendation # 1 and Suggestion # 5 are addressed at these findings.

Public notices prepared for herbicide application projects are used to inform the general public and First Nations about the timing and location of such projects, the intention being to provide an opportunity for members of the public to avoid areas which have been sprayed. The 2004 FMPM requires that maps used to inform the public be of sufficient detail to allow identification of the location of the aerial herbicide project(s) on the forest. Mapping provided with public notices of aerial herbicide projects on the Spanish Forest during the audit period while perhaps conforming to the 1996 FMPM, did not provide sufficient detail to allow the public clear identification of the location of these projects.

Suggestion # 6

Maps provided as part of public notices for aerial herbicide projects should provide sufficient detail to allow for the identification of the location of these projects.

The FMPM requires that AWS be reviewed and approved by the MNR District Manager (DM) 15 days prior to the commencement of operations. In the case of the Spanish Forest this requires the approval of DMs from Sudbury, Chapleau and Timmins. Over the course of the 5 year review period, therefore, a total of 15 DM approvals were necessary; all 15 approvals were on-time.

3.3 FOREST MANAGEMENT PLANNING

3.3.1 Planning Team Activities

During the audit period, the development of the 2005-2025 plan occurred, and so the mandate of this audit was to review the activities involved in preparing that plan. The audit team also undertook an abridged examination of the production of the 2000 FMP (which actually occurred during the previous audit term). As the review of the production of 2000 FMP revealed no serious difficulties, we focused on the activities the planning team undertook to prepare the 2005 FMP.

The Terms of Reference (TOR) formalize the establishment of the planning team and contain a detailed schedule for plan production, review and approval. Included in the TOR is a letter of appointment signed and dated by the Sudbury District Manager on January 21, 2003 indicating formation of the planning team.

The original TOR, dated January 31, 2003 was submitted to MNR by Domtar on Feb. 6, 2003 but was not recommended for approval by the Sudbury, Chapleau and Timmins District Managers until March 7, June 23 and July 2 respectively. Final approval by the Regional Director did not occur until October 14, 2003. By then, the planning team had held seven meetings and was well on its way with plan development, having already issued the Invitation to Participate and held the First Information Centre.

Approval of the TOR may just be considered a formality by some, and certainly the late approval of this document has as much to do with slow inter-District communications as anything else. However, the FMPM (1996) states that "the terms of reference, which must be approved by both the MNR District Manager and the MNR Regional Director, are the means of gaining approval to proceed with planning". The FMPM (2004) is even more explicit, stating that "the terms of reference must be approved by the MNR District Manager and the MNR Regional Director in order to proceed with planning" and that "the terms of reference will be approved prior to issuing the first public notice of the formal public consultation process". Clearly, this requirement was not satisfied. As a result, MNR must ensure that the TOR for the 2010 FMP is approved in a timely manner.

Recommendation # 3

MNR should ensure that the Terms of Reference for the 2010 FMP for the Spanish Forest is approved prior to submission of the first public notice of the formal public consultation process as required by the FMPM (2004).

Planning team minutes indicate that the TOR was periodically revised. A summary of updates is included in the most current TOR and are recorded in Appendix 3. Most updates were associated with changes in planning team membership.

Review of planning team meeting minutes show that 15 meetings were held from March 14, 2003 to November 17, 2004, however no meetings were held after final plan submission. There were also 2 additional task team meetings and 1 meeting to address required alterations. Minute takers were rarely acknowledged, however, various minutes were identified as being taken by at least three different individuals. Action items were identified but review of action items in subsequent minutes did not indicate whether or not they were completed. Many of those present at meetings were inconsistently identified in the minutes, sometimes referred to as members and other times as guests. In addition, it was often difficult to determine the affiliation of visitors.

Suggestion # 7

The planning team for the 2010 FMP should institute measures to improve the quality and consistency of planning team minutes.

Although some turnover of members was evident, this was not a significant factor as key members were involved through the entire process. Minutes indicate that meetings were well attended but participation did decrease in the latter half of plan production. Generally, meetings were well attended by representatives from Domtar, MNR Espanola & the LCC, moderately well attended by representatives from MNR Timmins and Sagamok Anishabek First Nation, and rarely attended by representatives from MNR Chapleau and the other First Nations. Meetings were dominated by discussion of modelling using the Sustainable Forest Management Model (SFMM), development of management alternatives, and the development of AOC prescriptions.

Although sufficient information and resources were generally available to planning team members to support their role in planning, the minutes also suggested problems with the late and ongoing incorporation of values, with many tourism and recreation values still being added prior to and after the 2nd Information Centre. Surprisingly, no discussion of the results of the 2nd Information Centre was documented in the minutes. The minutes also indicated delays in the provision of cultural heritage assessment modelling results and some controversy regarding the appropriateness of many required alterations.

The TOR indicates that there were initially 12 members on the planning team with representation from Domtar, MNR Espanola, MNR Chapleau, MNR Timmins, 4 First Nations and the LCC. However, the FMP summary for the Second Information Centre shows only 11 planning team members. In contrast, the Contributors Page for the 2005 FMP indicates that there were 13 planning team members including 4 foresters, 1 biologist, 1 forest technician, 6 First Nation representatives and 1 LCC member. They were supported by 12 MNR/SFL planning team advisors and the Local Citizens Committee. In spite of fluctuating numbers, there was sufficient representation of qualified professionals and stakeholders to address all FMPM planning requirements.

Grant Forest Products (GFP) requested a seat on the planning team but was denied by the MNR. Although GFP were invited to participate as a stakeholder, one might question the resistance to their inclusion since beneficiaries of MNR wood supply commitments have frequently been included on the planning teams for other forests. At the time, GFP also had an Overlapping Forest Resource Licence on the Forest. During the development of the 2005 FMP, Domtar was very cooperative and provided GFP with many opportunities to review material and provide input. However, the 2004 FMPM now requires the MNR District Manager to invite a person collectively representing beneficiaries of MNR wood supply commitments and overlapping licensees to participate on the planning team. Thus, the audit team anticipates that MNR will broaden representation on the planning team for the 2010 FMP in conformity with this new requirement.

The methods used to communicate with the public were in accordance with FMPM (1996) requirements for the Public Consultation and Native Consultation Processes (Although see the discussions in Sections 3.2.2 and 3.2.3. regarding poor document control regarding the Native the consultation process). Standard advertisements were used to provide notice of the various planning stages, although documentation could not be located for Stage Five (Plan Inspection) in the MNR office. Other issues regarding documentation control in the public consultation process have been discussed earlier. As identified in Recommendation # 1, MNR should improve its document control procedures in order to prevent such information from becoming lost in the future.

Review of the mailing lists for the first and second information centres revealed that the groups and individuals contacted included those itemized in Section 3.3.1 of the FMPM. There is no indication that anyone was missed.

Attendance ledgers indicate that most core planning team members and many LCC members attended the public information centres. Information centres appear to have been well attended. For one information centre location, the planning team signed a separate attendance ledger. This is a good idea and ensures that all planning team members present are accounted for.

Review of MNR correspondence binders and public summaries indicated that MNR and the plan author responded to most public inquiries, however, many replies took longer than the 2 week MNR Public Correspondence Service Standard, especially for the First Information Centre but also for the Second Information Centre and Draft Plan Review. Summary formats were inconsistent between planning stages and often lacked dates or cited incorrect dates. Also, the lack of a numbering system in the correspondence binder made it difficult to locate specific correspondence cited in the summary. Thus, a better system to manage correspondence and ensure that it is easily retrievable should be implemented for the production of the next FMP. This is addressed in Recommendation # 1.

3.3.2 Resource Stewardship Agreements

As discussed earlier, the Spanish Forest is heavily used for recreation and tourism, and there are many remote tourism operators present on the Forest. Domtar staff have worked with many of the operators over the years, and generally have a good relationship with them, but this does not prevent issues from surfacing and causing disagreement from time to time, most frequently related to access. Resource Stewardship Agreements (RSA's) are a relatively new tool that is available for sustainable forest licence holders and remote tourism outfitter to negotiate and agree on ways of facilitating the coexistence of both businesses on the same landbase.

RSAs were not available when the 2000 FMP was being prepared, but the framework was developed and in place, and there was a required process for SFL-holders to follow as they developed FMPs that took effect on April 1, 2004. The process worked as required, and there was good communication between the Company, MNR, Ministry of Culture, Tourism and Recreation (MCTR), and tourism outfitters. The Company approached the registered outfitters in a timely and solicitous manner, and met with those that were interested in discussing the potential for an RSA. MCTR was interested in monitoring the response to RSAs since they were quite new at the time.

It turned out that no RSAs were concluded prior to April 1, 2005, although there were twelve outfitters engaged in negotiation at that time, and so they did not factor directly into the development of the plan.

3.3.3 Sources of Direction

The FMPM requires that forest management plans pay heed to a variety of sources of strategic and planning direction, including:

- MNR's provincial goals, objectives and policies for natural resource management;
- Forest management guides (implementation manuals);
- Applicable regional- and district-level land use direction;
- MNR internal operational audits and independent audits for the management unit;
- Strategic business direction for forest-based businesses;
- The results of ongoing negotiations with Aboriginal peoples whose communities are situated in the management unit; and
- Licences regarding resource management on the Forest.

This audit found adherence to all key elements of the sources of direction. The 2000 FMP is a well-written document and makes consistent use of, and reference to, relevant sources of direction. Examination of field practices also satisfied the audit team that the sources of direction were adhered to during operations. This audit, as all audits do, identified some instances in which adherence to management direction should be improved, however, considered as a whole, the audit team is satisfied that relevant sources of direction have been followed.

3.3.4 Plan Introduction

The Introduction section of the 2000 FMP contains the elements required by the FMPM, including an index to the environmental components of the Plan and a brief description of how MNR's Statement of Environmental Values under the Environmental Bill of Rights had been considered in plan development.

3.3.5 Management Unit Description

The management unit description in the 2000 FMP is excellent. All of the required sections are included in the plan, explanations of key interactions and natural processes are full and well-explained. The discussion of historic forest condition, current forest condition, wildlife, and other forest values all meet or exceed the requirements identified in the FMPM. Supplementary discussions of key topics are included to provide a solid context for understanding management of the forest.

Forest Resource Inventory

The Forest Resource Inventory (FRI) for the Spanish Forest was prepared using air photography that was acquired in the year 1990. The 2000 FMP reports that the total Crown managed production forest area for the Spanish Forest is 977,672 ha. Of this total, 2,153 ha, or 0.2%, is in the Barren & Scattered category, while an additional area of 75,100 ha, or 7.7%, is in the depleted category. Most of the depleted stands consist of harvest depletions from previous terms, since there have been few stand replacing natural disturbances within the forest in the past 10 years.

For the preparation of the 2000 FMP, the inventory was updated to reflect actual harvest depletions up to March 31, 1997. Projected depletions were included for the years 1998 to 2000 for the Upper Spanish Forest and for the years 1998 and 1999 for the Lower Spanish Forest. In the latter case, projected depletions for the year 2000 were not available since there was no approved FMP for the year 2000 in place for the Lower Spanish Forest at the time the inventory update was completed in June of 1998. Accruals for both Forests, including free-to-grow and fifth year assessment results, as well as silvicultural records for artificial regeneration treatments for areas not yet free-to-grow, were used to prepare updated stand descriptions for barren and scattered areas. New roads were also included. FMA withdrawals and exclusions, as well as new parks and conservation areas contained within Ontario's Living Legacy, were reclassified as part of the inventory update process. Domtar did an excellent job updating the (1990) inventory for the 2000 FMP, making good use of their historical records – the Spanish is a "data rich" forest. Similar methods for inventory update were used in preparation for the 2005-2010 FMP.

The next FMP prepared for the Spanish Forest will be the first 10-year plan written under the new (2004) FMPM. By the start of the 2010-2020 FMP, the FRI for the forest will be 20 years old, and will reach 25 years in age in the middle of the 10-year term. The Forest Information Manual (FIM) requires that inventory used at the beginning of planning be no older than 20 years. The Spanish Forest FRI will meet this requirement, but the increasing age of the inventory may lead to inaccuracies resulting in operational problems in the latter part of the 10-year term. A partial update of the inventory may be desirable should this prove to be the case. Suggestion # 8 identifies the need for Corporate MNR to work with the company do develop an FRI update strategy as it is the understanding of the audit team that the MNR has recently taken back forest inventory responsibilities.

Suggestion # 8

Corporate MNR, in consultation with the Company, should consider developing a strategy for the future FRI update for the Spanish Forest.

3.3.6 Objectives and Strategies/Management Alternatives

The IFAPP directs the Audit Team to review the set of management objectives, targets and strategies developed for the 2000 FMP, and evaluate the selection and assessment of management alternatives considered in developing the selected plan direction.

Management Objectives and Strategies

The CFSA and the 1996 FMPM require forest management plans to contain objectives that address forest biodiversity, social and economic matters, silviculture, and the provision of forest cover for relevant values. The 2000 FMP contains a set of forest management objectives that spanned these four aspects, as well as associated targets in some cases. The objectives and targets are presented in Table 7 in Section 3.7.1, along with an assessment of the extent to which the objectives and targets were met.

The FMP indicated that the Policy Framework for Sustainable Forests guided the development of biodiversity objectives, while the Featured Species Policy influenced the wildlife objectives. Objectives for old-growth pine conservation were developed with reference to the Conservation Strategy for Old Growth Red and White Pine and timber production objectives and targets were guided by the Forest Resource Assessment Policy and provincially set Ministry Recognized Operating Levels (MROL's).

Many of the objectives are guided by the overall direction of shifting the composition and structure of the forest towards what would be expected in the absence of human activity. Examples include increasing the area of several pine forest units and changing the distribution of patch sizes and age classes. The thinking behind this direction is to more closely replicate the ecological conditions that species have developed and lived with for many centuries, thus aiding the conservation of biological diversity.

The Company is also in the midst of a transition from harvesting the large area of old, mature jack pine to focusing the harvest area on spruce dominated stands. This has been a long-term strategy of the Company on the Spanish Forest, stimulated by the very large area of mature jack pine that was present on the forest. These stands deteriorate sooner and more rapidly than old spruce stands, hence the decision was made to focus on capturing the old jack pine before it declined and then, once the largest portion of those stands had been harvested, to shift to mature spruce stands.

In the 1996 FMPs (for the Upper and Lower Spanish, which were separate forest management units at the time), the planned jack pine harvest volume averaged roughly 400,000 m^3/yr, while spruce volume was planned to average 220,000 m^3/yr. In the 2000 FMP, the harvest of both species was planned to average 400,000 m^3/yr, while in the 2005 FMP, the planned spruce harvest of 440,000 m^3/yr exceeds the jack pine harvest of 380,000 m^3/yr. The current situation has also led the Company to set a management goal of increasing the area of the jack pine forest unit in the managed available Crown landbase from a current level of 120,964 to 225,000 ha.

The goals in the 2000 FMP tend to be quite general, although in some goal areas, such as timber harvesting, the objectives and targets are quite specific. The specific harvest volume numbers are either MROLs or commitments that are part of the SFL. There are also quantitative targets given for the areas of some forest units in the desired future forest – these are derived from benchmark SFMM analyses of the forest condition in the absence of harvesting, as well as historical forest inventory data. In other areas, such as silviculture and the maintenance of a range of land uses on the forest, the objectives do not provide a great deal of more specific direction. As a result, many of the goals and objectives are more akin to general principles, and the assessment of whether they were achieved becomes subjective.

The FMP also provides a number of strategies for achieving the goals and objectives. A number of these are management actions related to planning, allocation, ground rules, and operations that are consistent with the SFMM runs projecting the development of the forest and outcomes of plan implementation. In this way, plan implementation proceeds in the same manner, as closely as is practicable, as it was modelled.

Management Alternatives

The forest management planning team is required to evaluate different approaches to managing the forest and select the one that best provides a suitable, sustainable outcome and meets plan objectives and targets. The 1996 FMPM stipulates that a benchmark, no-harvest scenario must be modelled, as well as three specific alternatives:

- Maximum available harvest subject to available silvicultural trust fund amounts;
- Maximum available harvest with unlimited silvicultural spending; and
- Meet anticipated industrial demand with unlimited silvicultural funding.

The planning team also analyzed the outcomes associated with meeting industrial demand subject to available silvicultural funding.

In addition to assessing the mandatory management alternatives, planning teams are urged to develop and investigate other management alternatives; for the 2000 FMP, the planning team developed one other alternative that was selected as the preferred alternative (which eventually became the selected management alternative) and formed a basis for the development of the plan. In comparison to the mandatory alternatives, the selected management alternative included constraints to stabilize harvest volumes and areas over time, keep the area of some forest units within the prescribed range (based on the null harvest benchmark scenario), limit the areas of some renewal and tending operations, and keep some wildlife habitat levels above minimum levels.

The mandatory alternatives are intended to be benchmarks that allow the planning team to investigate the upper limits of the productive potential of the forest. Many planning teams will perform the mandatory analyses and then develop a single management alternative that meets plan objectives and targets, and becomes the selected alternative. This is what the planning team for the 2000 FMP did, with management alternative #4 (MA_4) being selected.

In comparing the management alternatives, many of the quantifiable objectives and targets were met by all of the management alternatives considered. The target for SPF volume (815,200 m^3/yr) was the most difficult to meet, and the only management alternative which met the target throughout the planning period was based on unlimited silvicultural funding, which is infeasible. Of the feasible management alternatives, the selected one (MA_4) provided a reasonable average SPF harvest volume of 769,000 m^3/year, as well as the highest minimum harvest level (753,200 m^3/yr). These figures are close to what the plan described as the long term non-declining yield, which was 761,000 m^3/yr. The mandatory management alternatives were unable to satisfy both the minimum pileated woodpecker and marten habitat requirements throughout the planning period; only MA_4 was able to do so.

A scoring system was developed to measure the extent to which the different management alternatives met the quantitative targets, and the selected management alternative was the one that achieved the highest score, by a considerable margin. Finally, MA_4 was assessed to see whether it would meet the spatial tests of sustainability, which it did.

In sum, the planning team followed the requirements and intent of the 1996 FMPM in developing and assessing the management alternatives during the preparation of the 2000 FMP.

3.3.7 Operational Planning

Harvest

Operational planning prioritized stands for harvesting based on spatial characteristics as well as the results generated by the model of the selected management alternative. Efforts were made to aggregate smaller harvest blocks to form larger disturbance patches, to produce a patch size distribution that better matches the natural disturbance template, and to facilitate the provision of marten habitat core areas over time. Areas that were allocated for harvest during the previous plan, but not harvested, as well as areas that were scheduled for a second pass harvest were also included in the planned harvest areas in the 2000 - 05 plan period.

Operational planning is also influenced by the labour agreement in place between Domtar and the United Steelworkers of America union, which represents the employees in the Company's woodlands. The union harvests about half of the conifer that is cut on the Spanish Forest and wood that is harvested by the unionized workforce is processed in the Espanola and/or Nairn Centre mill. The Company is potentially able to sell hardwood that has been cut by the union, but prospective buyers have been unwilling to purchase it at prices that reflect the harvest costs. This means that the Company must consider the distribution of harvest areas by forest unit on a geographic basis within the unit, which adds complexity to the allocation and scheduling tasks.

Silviculture

The Silvicultural Ground Rules (SGRs) contained in the 2000 FMP were consistent with the Silvicultural Guides that were in effect at the time. All the required elements were included and the preferred prescriptions for each forest unit were appropriate and were consistent with the selected management alternative. In general, the silviculture strategies in the 2000 FMP were thoughtful and well-described.

Two exceptions were noted in the silvicultural ground rules: 1) commercial thinning in the jack pine and mixed conifer forest units; and 2) selection harvest in site type (ST) 15, hard maple stands in the hardwood-selection forest unit. Neither of the treatments noted as exceptions had been implemented during the audit period.

Forecasts for renewal and renewal support activities in the 2000 FMP were reasonable and were consistent with the selected management alternative. Renewal activities were planned for 57,985 ha, or 93% of the planned harvest area. The remaining area consists of lands removed from production (roads and landings) and areas in the tolerant hardwood and white pine forest units that were scheduled for harvesting under the shelterwood system.

The Forest Operations Prescriptions contained in the AWSs were found to be consistent with the SGRs contained in the 2000-2005 FMP. All operations we reviewed were conducted in accordance with the approved AWSs. Revision to the AWSs for silvicultural operations were conducted as required.

Values

Values maps present spatial information on the location of point-specific values on the forest. The maps are maintained by the Ministry of Natural Resources through its Natural Resource Values Information System (NRVIS). Company staff reported that, NRVIS provided a reasonable benchmark of values for use in both FMP and Annual Work Schedule Planning. However, NRVIS data are frequently supplemented with their own information, collected in the course of forest operations. These data are submitted to the MNR for incorporation into NRVIS, but the update process does not always occur promptly enough to incorporate the information into the data used for planning. Both the company and local MNR appear comfortable that this process is working reasonably well at capturing values data in the suite of information used for planning, in spite of the fact that, as discussed in Section 3.3.7, there were a reasonable number of plan amendments associated with the addition or removal of values and changing AOC prescriptions.

MNR correspondence shows native values mapping and Native Background Information Reports have been prepared and/or updated on the Spanish Forest based on input from the following First Nations:

- Brunswick House;
- Mattagami First Nation;
- Mississauga First Nation;
- Sagamok Anishnawbek First Nation;
- Serpent River First Nation; and
- Wikwemikong First Nation.

Issues regarding First Nations participation in forest management are explored in more detail in Sections 3.2.3 and 3.8.

Two specific values-information related issues surfaced over the course of the audit: Moose Aquatic Feeding Areas (MAFAs), and stream classification. MAFAs are classed from a value of 1 – 4 based on their size and the quality and quantity of vegetation they contain (in terms of preference by moose)[7]. MAFAs ranked 3 and 4 are protected by Area of Concern prescriptions which require a 120 m no-harvest reserve. MAFA's whose classification is unknown are also protected in this manner using a precautionary approach. For the Spanish Forest, MAFA classification data were lost or not transferred during the process of compiling information from E.B.Eddy's (Domtar's predecessor in management of the Spanish Forest) system into NRVIS some years ago. (Data were originally provided by MNR to E.B.Eddy, but the original data were apparently no longer accessible by MNR in it's own records either.) Unfortunately, the loss of these data has left a considerable void in the values information for the Spanish Forest. The lack of these data cost the company in terms of harvest opportunities, and through the creation of access constraints, as staff are virtually certain that some class 1 and 2 MAFA's (which would not normally be afforded protection) are being protected through the precautionary measures being used for unclassified MAFAs. While the use of the precautionary approach *per se* is not questioned, the lack of complete MAFA information is a distinct shortcoming of the values information for the forest. What is particularly unfortunate is that the data were in-hand some years ago, but seem to be no longer in existence. The MNR has invested energies into trying to recover the information, to little avail. It seems the only approach to securing the data is through field surveys.

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[7] Ranta , W.B. (ed). 1998. Selected Wildlife and Habitat Features: Inventory Manual. Version 1.0. Ontario Ministry of Natural Resources, Toronto.

The second issue relates to the large proportion of streams in the forest designated as unsurveyed (i.e. it is not known whether they are cool/warmwater or coldwater). There is a timing restriction on coldwater streams which permits in-water work (i.e. construction of bridges and culverts) only from mid-June to Sept. 1. For cool and warmwater streams the timing window is less restrictive. For unsurveyed streams, a precautionary approach is used in which the timing restriction of coldwater streams is applied. If the company cannot construct crossings during the summer period, then it is forced either to use expensive temporary bridges (for which in-water work is not required), or forgo building crossings until the following summer. Often the option of forgoing crossing construction is not practical as it will mean the loss of scheduled harvesting activities. MNR staff note that more road pre-planning should reduce the extent of this issue. It may be possible for the company to improve its preplanning to help address this issue, as is noted in Suggestion # 9. However, the audit team notes that MNR staff are not always able to respond as promptly as they would like to approve crossing requests – delays can push the company into the requirement to construct crossings after Sept. 1. More to the point, however, is that it is the MNR's responsibility to collect and provide accurate values information. The Forest Information Manual[8] acknowledges this responsibility: "The MNR must ensure that information about non-timber values is collected in accordance with the standards described in Section 4.2 and that priority is given to those values that are affected by proposed and optional areas of forest operations for the term of a forest management plan that is under preparation." (FIM p. 37), and "The MNR is responsible for confirming the presence of non-timber values, and ensuring that information about non-timber values is collected and confirmed. The MNR must ensure that information about non-timber values, which is provided to planning teams, is sufficient to determine road locations and develop AOC prescriptions" (FIM p. 47).

The common thread of the MAFA issue and the unsurveyed stream issue is that it is the MNR's responsibility to collect and provide values information which is required in forest management. The MNR does provide funding for values collection, however this important part of their resource management mandate is not being met by the resources available.

Recommendation # 4

Corporate MNR should provide adequate funding to meet its obligation for collection and provision of accurate values information on the Spanish Forest.

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[8] Ontario Ministry of Natural Resources. 2001. Forest Information Manual. Queen's Printer for Ontario.

Suggestion # 9

The Company should review its approach to harvest and access pre-planning to ensure that its efforts are conducive to meeting timing requirements for in-stream work.

Areas of Concern

The 2000 FMP contained almost 30 unique prescriptions for Areas of Concern. Many of the AOCs were group prescriptions, intended to be applied broadly to common values. Examples of this type of AOC are ski trails, moose aquatic feeding areas, and trapper cabins. Other prescriptions were prepared for individual areas of concern, intended to be applied to unique circumstances. These types of AOCs include tailored prescriptions for individual provincial parks.

The total number of AOC prescriptions in the 2000 FMP is relatively low in comparison with other SFLs in the province. The difference between the Spanish Forest and other units is that there are relatively fewer prescriptions for individual areas for the Spanish Forest. The approach taken seems to be one which combines similar types of values in a single AOC prescription (e.g. one single prescription includes remote and non-remote residential areas, and remote and non-remote cottages), and the provision of a reasonable amount of flexibility in group prescriptions to allow for tailoring to unique circumstances (e.g. the prescription for trappers cabins acknowledges that it may be altered if agreed to by the cabin owner and the forest management company). This approach implies a good rapport between the company and MNR as the company must have engendered the trust of MNR to support this strategy. In any regards, the audit team found that the prescriptions were thorough and covered all the important values in the forest.

Wildlife Habitat

An important part of the forest state modelling which occurs as part of the planning process is the prediction of the habitat status for many indicator wildlife species. Consistent with direction from the MNR, the habitat status of 20 wildlife species were tracked over the course of SFMM simulations (Although 20 species were tracked, 23 indicators were produced as for three species two indicators each were produced – black bear foraging and black bear fall/winter habitat were tracked separately, as were white tailed deer foraging habitat and white-tailed deer winter habitat, and moose foraging habitat and moose winter habitat.) Also consistent with MNR direction, it is deemed acceptable if the habitat of each species does not fall below an amount which is less than 20% below the minimum recorded at any time during the SFMM benchmark run[9]. So, for example, say that in the SFMM 100-year benchmark run, the area of habitat for species X reaches a minimum of 1,000 ha; it is then deemed sustainable if there is a minimum of 800 ha of habitat (20% less than 1,000). (Habitat levels are sometimes permitted to cross below the –20% level for brief periods of time prior to the DFFC, without concerns regarding sustainability being raised.)

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[9] The benchmark run is run to identify the state of the forest in the absence of fire suppression and timber management. For the Spanish Forest, the model was benchmark run simulated the forest condition for 100 years.

For the Spanish Forest, the habitat predictions for all the wildlife species stayed within the MNR-mandated bounds, however several factors regarding the predicted trend in wildlife habitat are a concern to the audit team. For the 2000 FMP, the amount of habitat predicted to be available at the time of the DFFC (the year 2060) for 17 of the 23 wildlife species indicators was less than is now present (Figure 4). For five indicators, the amount of habitat predicted to be available is less than the minimum amount simulated during the SFMM benchmark run. (Note, although the amount of habitat predicted to be available is below the minimum amount predicted by the SFMM benchmark run, it was above the level of 20% below the minimum). The predicted average change in habitat amount for the indicator species was a decline of 43%.

Because the trend shown in the 2000 FMP was a concern to the audit team, we examined the comparable results for the 2005 FMP. For the 2005 FMP, the amount of habitat predicted to be available at the time of the DFFC (the year 2105) for 18 of the 23 wildlife species indicators will be less than is now present (Figure 5). For 16 indicators, the amount of habitat predicted to be available is less than the minimum amount simulated during the SFMM benchmark run. The predicted average change in habitat amount for the indicator species was a decline of 32%.

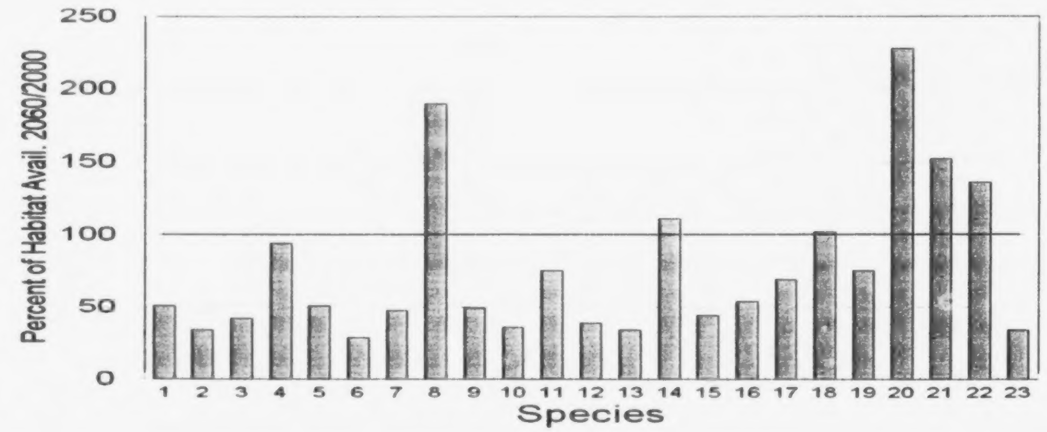

Figure 4. Amount of habitat available in 2060 (the DFFC year) as a percent of habitat available in 2000 according to the 2000 FMP. The line at the level of 100 indicates the level at which there would be an equal amount of habitat in 2060 compared to 2000. (Species are 1 – barred owl; 2 – bay breasted warbler; 3 – black bear (fall/winter); 4 – black bear (foraging); 5 – black-backed woodpecker; 6 – boreal chickadee; 7 – broad-winged hawk; 8 – deer mouse; 9 – great gray owl; 10 – least flycatcher; 11 – lynx; 12 – marten; 13 – moose (foraging); 14 – moose (winter); 15 – flying squirrel; 16 – pileated woodpecker; 17 – ruby-crowned kinglet; 18 – ruffed grouse; 19 – snowshoe hare; 20 – spruce grouse; 21 – white tailed deer; 22 – white-throated sparrow – 23 – white-tailed deer (winter))

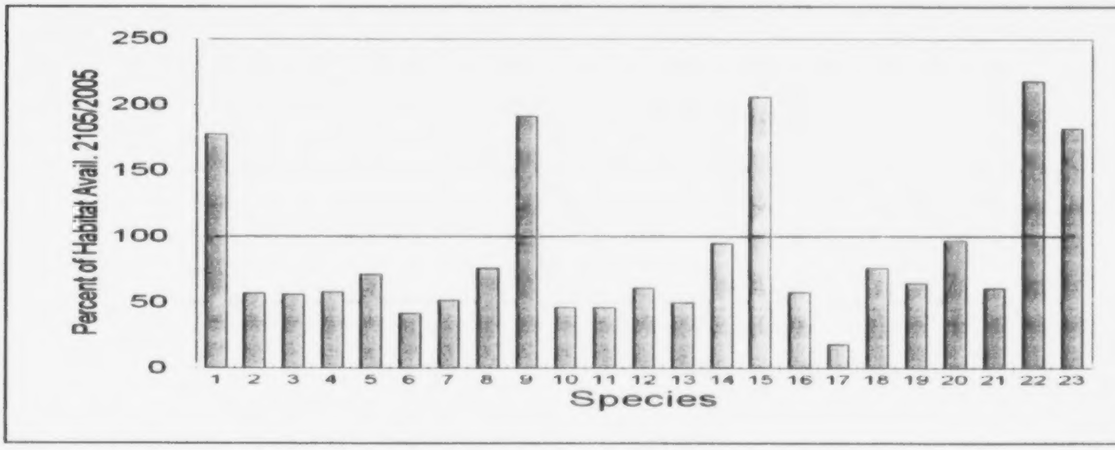

Figure 5. Amount of habitat available in 2105 (the DFFC year) as a percent of habitat available in 2005 according to the 2005 FMP. The line at the level of 100 indicates the level at which there would be an equal amount of habitat in 2105 compared to 2005. (Species are 1 – American kestrel; 2 – bay-breasted warbler; 3 – black-backed woodpecker; 4 – black bear (autumn); 5 – black bear (summer); 6 – boreal chickadee; 7 – broad-winged hawk; 8 – Connecticut warbler; 9 – deer mouse; 10 – great gray owl; 11 – least flycatcher; 12 – lynx; 13 – marten; 14 – moose (late winter); 15 - moose; 16 – flying squirrel; 17 – pileated woodpecker; 18 – red-backed salamander; 19 – ruby-crowned kinglet; 20 – ruffed grouse; 21 – snowshoe hare; 22 – spruce grouse; 23- white-throated sparrow.)

The predicted changes in wildlife habitat raise some concerns; first is the fact that the trends are sharply declining. Second, the audit team is concerned that the bounds of acceptable change (which permits declines of up to 20% below the minimum encountered during the benchmark run) are too broad. The situation on the Spanish Forest illustrates this well. For the 2005 plan, habitat levels at the time of the DFFC for the majority of species are predicted to fall below levels predicted at any point of the 100 year benchmark run. For the Spanish Forest the benchmark run shows a marked decline in the habitat of many species (compared to present levels) - this calls into question even more the wisdom of permitting declines below the benchmark minimums.

Although the DFFC is a long time in the future, the management actions taken now will obviously affect the forest condition then. Furthermore, management actions predicated on the acceptability of such declines in wildlife habitat will limit options for wildlife habitat management in the not-so-distant future related as well.

We note that the Company has complied with the direction provided by MNR, but we feel the MNR's direction on this topic needs considerable refinement and have addressed this in Recommendation # 5. MNR's direction regarding the limits of acceptable change were provided at FMP training sessions and are not provided in any of MNR's wildlife guides or the FMPM (1996 or 2004). A recent compendium of FMP training material[10] provides assistance to planning teams on how to set objectives for the FMPM indicators, but does not comment on, or refute the approach of identifying declines of up to 20% below the benchmark minimum as acceptable.

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[10] Ontario Ministry of Natural Resources. 2005. Use of Indicators in Forest Management Planning. FMP Training Material.

Recommendation # 5

Corporate MNR should revise the direction provided to planning teams which permits broad and extensive declines in wildlife habitat and habitat levels to fall below those predicted to occur in the SFMM benchmark runs.

Access Infrastructure

During the course of the field inspections, the audit team noticed several instances in which tertiary and secondary roads were suffering from neglect. The signs of neglect included washed out cross-drainage culverts, erosion of roadsides onto the travelled surface, and slumps in roadbeds, etc. In response to the concerns of public liability and safety raised by the audit team it became apparent that the company and the Ministry hold different perspectives about which party should have, or has responsibility for maintenance of many roads which are no longer used for forest operations but are still used by members of the public. Both parties noted that these issues are being pursued as part of the Forest Roads and Water Crossings Initiative[11] (FRWI). The task team report produced as a result of the initiative is a very thoughtful and presents a series of mechanisms to resolve ownership, and maintenance responsibilities. The MNR and company noted that it is their expectation that ownership issues (and therefore maintenance responsibilities) will be resolved during the course of the 2005 FMP, through implementation of processes identified in the FRWI report. A key precursor to dealing with maintenance and liability issues is the completion of an roads and watercrossings inventory, which was initiated, but put on hold pending the completion of the FRWI report.

The audit team notes that issues related to road and crossing maintenance were identified in the previous IFA and have not been fully resolved; the Action Plan for dealing with the last audit's recommendations notes that the lack of action is at least partly because the parties were waiting for completion of the FRWI report. The report was released in October, 2003, leaving almost two years after its release and the time of this audit's site visits to make headway on the issues. It is not apparent to the audit team that significant progress was made in that time.

The audit team has no doubts that the Ministry and the Company intend to resolve ownership and liability issues in the course of this plan period. Nonetheless, to ensure the issue of resolving road and watercrossing liability and maintenance responsibilities remains a priority on the forest, we have identified the need in a recommendation.

Recommendation # 6

The MNR and Company should jointly complete the inventory of roads and water crossings the forest and resolve ownership issues for each road and water crossing in the inventory.

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[11] Forest Roads and Water Crossings Task Team. 2003. Forest Roads and Water Crossings Initiative Task Team Report. Ontario Ministry of Natural Resources.

3.3.8 Plan Review and Approval

Timelines in the original TOR were in accordance with FMPM requirements. Comparison of target dates in the TOR with actual milestone achievements reveals that timelines were generally met. A delay of approximately 1 month in holding the First Information Centre translated into similar delays with the 2nd Information Centre and submission of the Draft plan. Reasons for the delay in holding the First Information Centre included the need to "complete tasks" and avoid the first two weeks of moose hunting season.

Review of the certification page for the 2005 FMP reveals that many plan reviewers were also plan advisors and planning team members. Specifically, 6 of 11 plan reviewers were MNR planning team advisors while 2 of 11 plan reviewers were MNR planning team members. The three remaining advisors were an MNR Forest Industry Liaison, MNR Area Supervisor and an Ontario Parks representative. In this case, the familiarity of plan reviewers with plan content generally helped with the timely review of the FMP.
Review of the approval page revealed that it contained the appropriate certification and approvals, including the required signatures and seals.

Required Alterations

The draft FMP was submitted on July 6, 2004, and required alterations were provided to the plan author on September 6, 2004. Interviews with MNR representatives indicated that required alterations were, for the most part, reasonable and well incorporated into the plan. However, interviews with the plan author suggest a higher level of difficulty and some difference of opinion regarding the appropriateness of many alterations. It was the author's perspective that many alternations were merely statements of opinion rather than actual requirements. Also, some reviewers purportedly developed alterations to promote their opinions after failing to receive favourable decisions from the planning team. Controversy surrounding this issue was clearly evident in the planning team minutes.

Term and Condition 62.(b)(ii) of the *Class Environmental Assessment by the Ministry of Natural Resources for Timber Management on Crown Lands in Ontario* states that required alterations and the reasons required for the alterations relating to the manipulation of forest cover shall be certified by a Registered Professional Forester. This requirement is also contained in the FMPM (1996). More recently, this commitment was reaffirmed in Section 4.(b) of Declaration Order MNR-71 and the FMPM (2004).

Although the MNR representative for the lead District did compile MNR required alterations and spend some time reviewing them for consistency with MNR policy direction, the appropriateness of some alterations remained at issue. To improve the utility of alterations for the next FMP, MNR should encourage professional accountability by ensuring that the Terms of Reference for the 2010 FMP formally assign responsibility to an MNR RPF for the certification of all required alterations related to the manipulation of forest cover.

Recommendation # 7

The MNR should take measures to ensure that required alterations relating to the manipulation of forest cover for the 2010 FMP are certified by an R.P.F.

3.3.9 Plan Amendments

The 2000-2020 Spanish Forest FMP Amendment Summary indicates that there were 20 amendments during the audit term, all of which were classified as administrative. Most were approved within a reasonable time frame while a few took between 1 and 2 months. One request was denied. Records are consistent and well-organized at both the company and MNR District offices.

Six amendments were for new/changes to AOC prescriptions while 5 were to add/remove values, 2 to add missing renewal areas, 2 for salvage harvesting, 2 for alterations to harvest/contingency blocks, 1 to allow the skidding of previously felled timber, 1 to change a water crossing location, and 1 at the request of MNR Chapleau. The number of amendments associated with the addition or removal of values and changing AOC prescriptions suggests some level of uncertainty with respect to the quality of values inventories. Otherwise, the numbers of amendments are not excessive. That there was only one water crossing amendment and none for tertiary road locations suggests a high degree of flexibility in the AWS or an above-average level of operational pre-planning. Overall, the frequency and rationale for FMP amendments appeared to be reasonable.

FMP amendment requests categorized by the MNR DM after the effective date of the 2004 FMPM are to be prepared in accordance with Part C, section 2.0 of the 2004 FMPM. The new requirements are intended to reduce the burden and delays associated with preparing amendments for relatively insignificant changes. Examples of changes for which amendments are generally no longer required include: features or values that no longer exist, AOC prescription changes, changes to crossing locations or conditions, unmapped and/or incorrectly mapped streams and/or mapped features and values. To date, the functionality of the new system remains to be verified as no amendments were shown on the master list after the requirements came into effect on September 1, 2004.

Staff turnover during the term of the audit resulted in amendments being prepared and submitted by at least five different Domtar R.P.F.s, each of whom was deemed to be the successor to the plan author. Restructuring and reassignment were responsible for most of the turnover. Amendments during the first year of the term were well documented and submitted with the required RPF signature, seal and certification statements. With the recruitment of a new forester, two amendments were submitted by the company superintendent and use of a proper certification page was discontinued. Subsequent amendment requests through to the end of the term often lacked R.P.F. signatures, seal and or certification statements. In contrast, all required signatures were evident on MNR review and approval documents.

In hindsight, MNR should have recognized the lack of proper certification and pointed this out to the company. In any event, this shortcoming was recognized by the company and the use of a proper certification page was re-instituted. Accordingly, the Audit Team has every reason to believe that the Company will continue to properly certify future amendment requests.

The FMPM (1996) requires that MNR distribute copies of amendments to various locations specified within the FMPM (e.g., MNR Region, MNR Forest Management Branch, MOEE Regional Office and a location in Toronto provided by MNR). Staff indicated they periodically forwarded amendments to MNR Region, however, no documentation could be found in the

District Office to verify this. Accordingly, MNR should fulfil its commitment to forward copies of FMP amendments to the locations specified in the FMPM and put a system in place to document this.

Recommendation # 8

MNR should assign responsibility for amendment and plan upkeep at all required locations and should take immediate steps to ensure that required FMP amendment documentation is forwarded to all locations as required by the FMPM.

3.3.10 Contingency Plans

As there were only minor delays associated with production of the 2005 FMP, it was not necessary for the planning team to consider production of a contingency forest management plan.

3.3.11 Annual Work Schedules

Annual Work Schedules produced during the term of the audit were found to be consistent with the 2000-2020 Spanish Forest FMP and met the requirements of the FMPM (1996).

In the 2004-05 AWS, the area scheduled for regular harvest (20,884 ha) was much higher than the average annual rate of forecast depletion as derived from the FMP (12,527 ha). In fact, all of the remaining FMP allocations were included in the AWS since efforts were underway to find operators and/or markets to harvest as much of the outstanding FMP harvest allocation as possible in the final year of the FMP. Additional areas required "clean-up" harvest for second pass poplar harvesting and those blocks which had been previously suspended due to market conditions. The size of AWS harvest allocations compared to FMP forecast depletion rates is discussed in subsequent paragraphs.

The vast majority of harvest allocations on the SFL were forecast to be harvested by Domtar, with smaller amounts being harvested under overlapping licences issued to Grant Forest Products and Gervais Forest Products Inc. The discussion of wood utilization explains the difficulties encountered in marketing poplar, especially from the southern part of the Spanish Forest, where distance to markets and existing supplies from adjacent units that are traditional suppliers of other mills are considerations. During the development of the 2000 FMP, the MNR issued a request for proposals to utilize low-grade hardwood and the Company will continue to actively search for customers for this wood.

The schedule of renewal, tending and protection operations includes a planting program of almost 5 million seedlings, 2,000 ha of aerial seeding, 5,000 ha of site preparation, 5,000 ha of aerial spraying, a few hundred ha of juvenile spacing and six hundred ha of tree marking. The text contains a thorough discussion of program variations as they pertain to FMP planned levels and operational circumstances encountered in the field.

Requirements for fire prevention and suppression are contained in Section 3.7 Fire Prevention and Suppression within the AWS. This document contains a thorough discussion of modification guidelines for forest operations and all the required fire prevention and suppression plan components stipulated in the FMPM with only some minor exceptions. For example, a commitment is made to provide a list of 3rd party operators (Contractors) and overlapping licensee contacts to MNR prior to the commencement of operations. As such, this information is not included in the AWS and Domtar would be able to provide verification that the required list of third party and overlapping licence contacts was provided to MNR prior to the commencement of operations. Alternately the company might consider developing procedures to document the satisfaction of such requirements in the future.

Also, the description of how forest workers will be made aware of fire prevention plans and initiatives was limited to one sentence: *"The forest fire danger rating will be communicated to operations by the Management Forester or by the Domtar Representative listed in Chart 1."* Although there are a few more references built into the guidelines for modified forest operations, this description could be modified to provide more detail regarding Domtar's training programs.

Review of the other annual reports confirmed that they were also consistent with the 2000-2020 Spanish Forest FMP and met the requirements of the FMPM in all respects except one. Closer examination revealed an issue with respect to the size of AWS harvest allocations compared to FMP forecast depletion rates. Although the 2000-01 AWS scheduled only 121% of the average annual forecast depletion area in the FMP, this rate jumped dramatically to 270% of the average annual rate in 2001-02 and 260% in 2002-03. For the balance of the term, both remaining AWS scheduled all remaining FMP area for harvest. For 2003-04, this amounted to more than 300% (Fig. 6).

The 1996 FMPM states that "if the annual area scheduled for depletion is not in approximate agreement with the average annual rate of forecast depletion for a forest unit for the five-year term of the forest management plan, the text of the annual work schedule must provide an explanation". Alternately, the 2004 FMPM states "to provide flexibility for unforeseen circumstances, additional harvest area may be scheduled, and the rationale for the additional harvest area will be documented in the text".

Reasons cited in the AWS included the need for operational flexibility due to changing market conditions, weather, variations in forecast volumes, or identification of new values. Domtar staff also mentioned that the entire area of blocks needing clean-up or a second pass was required to be included in Table AWS-1, which summarizes area by forest unit. The AWS text also explained that numerous additions and revisions were avoided due to increased AWS flexibility. Although decreased numbers of revisions in the three years possessing the most flexibility (e.g., 2001-02, 2002-03 & 2003-04) may support this assertion, it should be recognized that the frequency of AWS revisions can also be reduced through early field reconnaissance and more detailed operational pre-planning. Although the advantages of this strategy to Domtar are clear, such large AWS harvest allocations are well in excess of Regional norms, which MNR staff reported are in the range of 150% up to 200%.

Domtar staff also explained that second-pass harvesting or clean-up operations required that many blocks be entered into subsequent AWS even though the bulk of wood may have already been removed in the first year. This would at least partially explain why the 2000-01 AWS scheduled only 121% of the average annual forecast depletion for the first year of the FMP term while this percentage more than doubled for the subsequent AWS. Although the advantages of this strategy are apparent, AWS harvest allocations were still determined to be greatly in excess of Regional norms after consultation with MNR Regional staff.

Although the advantages of this strategy to Domtar are clear, such large AWS harvest allocations are well in excess of Regional norms. Figure 6 compares both scheduled and actual harvest rates with the average annual rate of forecast depletion in the FMP. AWS harvest allocations appear even more excessive when compared against actual harvest rates. For example, the scheduled harvest area in 2003-04 was in excess of 400% of the actual rate of harvest. Even in the most uncertain times, it would be difficult to argue that this level of operational flexibility is required to meet customer demands or deal with operational uncertainty.

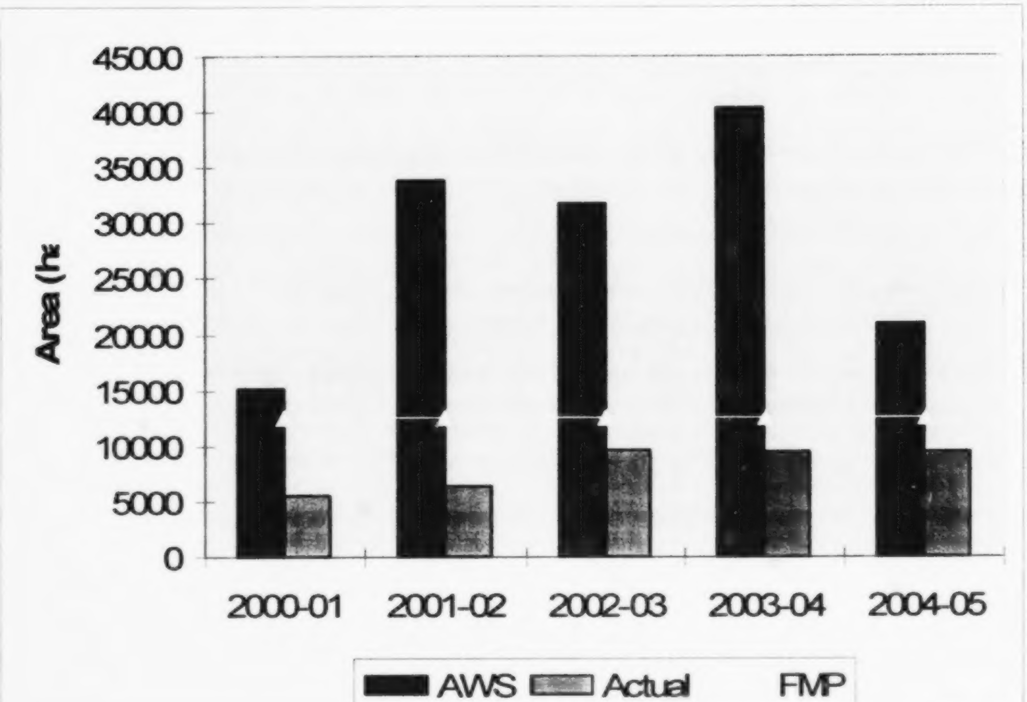

Figure 6. Comparison of AWS Scheduled and Actual harvest Levels with the Average Annual Rate of Forecast Depletion in the FMP.

Excessively large AWS harvest allocations also result in greater workload for MNR staff who are required to check the area approved in the plan and ensure that proper notifications are provided to mining claim holders, tourism operators, and any other organizations or individuals who may be affected by scheduled operations. The uncertainty associated with repeated notification and delay of operations can also create difficulties for other forest users. For example, one tourist operator was frustrated with the difficulty in scheduling the use of certain camps adjacent to proposed forest operations. In this case, potential clients were turned away from certain areas only to find out that scheduled harvest operations did not proceed as planned. Both MNR and industry lose public credibility when notification is provided, sometimes two or three years in a row, without operations actually taking place.

To maintain confidence in both the utility and reliability of the AWS, the audit team believes that Domtar reduce the size of future AWS harvest allocations in comparison to the average annual rate of forecast depletion in the FMP.

Recommendation # 9

Domtar should reduce the size of future AWS harvest allocations in comparison to the average annual rate of depletion forecast in the FMP. This should be done in consultation with District and Regional MNR to determine acceptable ranges.

All AWS approval pages contained the required company and MNR signatures and were approved on schedule.

According to the AWS revision ledgers, there were a total of 123 revisions during the five-year term of the FMP which is coincident with the term of the audit. Considering the high degree of operational flexibility afforded by harvest allocations in excess of Regional norms, the frequency of revisions appears excessive, particularly at the beginning and end of the audit term. Specifically, there were 42 revisions in 2000-01, decreasing to 10 revisions in 2001-02 and gradually increasing to 19, 22 & 30 revisions in each of 2002-03, 2003-04 & 2004-05.

Most were to changes in water crossing and tertiary road location and harvesting operation (new blocks & 2nd pass). Others were required to add renewal areas, change AOC prescriptions and append spray and slash pile burning programs. Contributing factors may include the centralization staff in Timmins, greater reliance on contractors, reduced levels of field reconnaissance, the timing window available for in-stream work for water crossing construction (discussed earlier), and less local communication with the lead MNR District in Espanola. Understanding that the current restructuring process may continue, strategies should be developed to ensure that the frequency of AWS revisions does not become excessive.

Suggestion # 10

The Company should develop strategies to reduce the number of AWS revisions.

3.4 PLAN IMPLEMENTATION

3.4.1 Areas of Concern

The IFAPP directs auditors to examine whether AOC protection measures were implemented as in the approved prescriptions, and that the prescriptions were suited to the specific site conditions.

Field inspection of AOCs revealed uniformly appropriate AOC prescriptions. The issue of unclassified MAFAs , discussed earlier, was apparent in a couple of the AOCs viewed, however given the use of the precautionary approach, the implemented prescription on the ground was consistent with the prescription identified in the AOC documentation. A couple of previously identified minor trespasses of AOCs were viewed, but no systemic issue of this sort was apparent.

3.4.2 Harvest

The Company was faced with a number of factors that adversely affected harvest levels during the plan period. A strike by forestry staff at the Company ran from January to June of 2000, followed by a strike in the Nairn Centre sawmill between October 2000 and May 2001, severely reduced the level of harvesting activity on the forest during the first year of the audit period. Later, the pulp mill was closed between May 2001 and August 2001 for modification, which affected wood flows and reduced the harvest during the second year of the audit period. During the 2002-03 period, the union operations shifted to a shortwood harvesting system, which led to less wood flowing to the sawmill and more wood going to the Espanola pulp mill.

Largely as a result of these factors, the total harvest area during the first two years of the plan was 11,836 ha, less than half of the planned level. While harvesting in the last three years increased substantially, it was at approximately 77% of the average annual planned level, resulting in a total actual harvest area that was 66% of planned. Actual harvest area in only three forest units exceeded 66% of the planned level - jack pine (85%), mixed hardwood poplar (84%), and mixedwood (67%).

The same pattern was evident in harvest volume data, with relatively low harvest volumes during the first two years, followed by three years of stronger volume harvests. Overall, the actual volume harvested during the audit period was 62% of planned; actual softwood harvests were 83% of planned while actual hardwood harvests were 33% of planned. The conifer harvest volume reflected an actual jack pine harvest that reached 111% of planned levels, accounting for 63% of the coniferous volume, while the black spruce harvest was 64% of planned. Poplar volume made up 99% of the actual hardwood harvest.

Actual harvest volume per hectare that was recorded in the ARs was 114 m^3/ha, which was somewhat below the planned level of 120 m^3/ha. However, there were some unique factors at work in the last year of the audit period; average volume per hectare realized during the first four years of the plan period was 120 m^3/ha, indicating that the growth and yield curves used by the Company in the plan are generally accurate. The volume per hectare obtained during the last year of the plan was only 93 m^3/ha, 20% lower than what was recorded in the four previous years. Part of the reduction was due to difficulties in getting harvested wood to the mill, where it is weigh-scaled and only then becomes recorded as "harvested" - an early spring in 2005 meant that at least 100,000 m^3 of harvested wood was stranded in the bush as access deteriorated with snow melt. A second contributing factor is that it is not uncommon for companies to leave stands with lower quality or higher costs to the later years of a plan period, and this also may have influenced the yield in 2004/05.

Only a minor amount of salvage harvesting took place on the Forest. In 2000-01, 464 m^3 were cut and in 2003-04, 1,153 m^3 were cut. These areas were harvested to salvage wood damaged by jack pine budworm.

By-pass

By-pass has historically been an issue on the Spanish Forest, and it re-appeared as an issue during the 2000 plan period. By-pass occurs when the decision is made not to harvest stands that were scheduled for harvest because either the wood quality or volume is lower than expected or because conditions are such that the block is not economic to operate. Some amount of by-pass is to be expected, but if the forest inventory is poor or the planning team does not take adequate care to consider carefully the stands that are allocated, then a higher level of by-pass will occur. A persistently high level of by-pass suggests that the forest has less area that is both economically and physically available than the planning team thought, and could, if very severe, lead to concerns about overharvesting.

During the audit period, a total of 20,776 ha was declared to be by-pass, with approximately 19,000 ha being declared in 2004-05. (It is noted that the annual reporting format, effective for the 2004-05 fiscal year, no longer requires licensees to report on by-pass – these calculations were performed by the Company at the request of the audit team.) The rate at which by-pass area is declared generally trends upwards during a plan period, and is highest in the final year, as it becomes more certain that low-quality areas will not be harvested.

The rationale that the Company used to declare by-pass was lack of markets for the timber (accounting for 17,732 ha), inoperability (172 ha), lack of merchantability (39 ha), and other reasons (2833 ha). "Poor marketability" applied to situations in which the wood was not economic to harvest due to the difficult economic conditions in the sector (distant stands were less attractive to harvest), substitution for harvested wood with purchased wood, and unfavourable hardwood component. Also, markets for white pine and tolerant hardwoods were poor throughout the audit period. The auditors normally think of by-pass as wood that is inoperable or inaccessible – instead, much of the 17,732 ha will be eligible for harvest in the 2010 FMP. Because of this situation, the very high level of calculated by-pass does not raise serious concerns. While more effort put into operational plan development would help to reduce the amount of by-pass and provide more accurate estimates of the actual harvest area; the steps taken to implement Recommendation # 9 regarding AWS planning will help in this regard.

Utilization

There were some issues related to utilization that surfaced in this audit, however for the most part they are fairly transient in nature and are being resolved.

The Audit Team observed numerous piles of hardwood logs at roadside on harvest blocks which looked to have been completed. Some of this timber had been sold at roadside to Grant Forest Products, and it was now Grant's responsibility to haul to timber. Most of this timber had been harvested in the 2004-05 winter period and was "trapped" in the bush because of an early spring, which limited the amount of haul time available. Domtar and Grant have received "authorization to haul" extensions and have been hauling this timber since the IFA site visit, and intend to have all of it removed by the end of the 2005-06 winter. Nevertheless, to ensure that this is completed in a timely manner, the following recommendation has been issued.

Recommendation # 10

Domtar and Grant Forest Products should ensure that the wood harvested in the winter of 2004-05 that is remaining at roadside is hauled to mill as soon as feasible.

More seriously, the Audit Team encountered examples of poor utilization in some recent harvest blocks along the Metagama Road, an example of which can be seen in Figure 7. This had also been identified in compliance inspections performed by MNR, and the Company was aware of the situation. The main reason for this was that Nairn Centre sawmill had converted from a tree-length operation to a short-wood operation, and the company preferred 12 and 16 foot lengths. Company staff said that the operators were tending to slash trees into 16 foot lengths, and leaving the excess at the top of the tree. As a result, pieces of timber which were shorter than 12 feet but which still contained merchantable wood were being left at roadside.

At the same time, the Nairn mill had, until 2004, been unable to properly debark small diameter wood, but a yield maximizer was installed on the small wood line in the last year that will debark and process small diameter timber. This now means that the Nairn mill can process wood with a diameter that is less than the minimum legal requirement, and the Company has been training its harvest operators (union and contract) to improve their topping and roadside slashing practices and improve utilization. The Company's modifications to the mill and operator training are expected to resolve the types of utilization problems seen by the Audit Team, and the Company has also committed to removal and use of the merchantable wood that was left behind in the roadside piles. The Audit Team feels that the significance of the incidents was such that a recommendation is warranted to ensure that the Company adequately corrects this type of problem.

Recommendation # 11

The Company should ensure that the merchantable pieces of wood that have been left at roadside are utilized and should continue to adopt measures in the woodlands and in the mill that will increase fibre utilization.

The third major utilization issue raised in this audit is the concern on the part of hardwood users who source wood from the Spanish Forest that, while their volume commitments are largely being met (as discussed in Section 3.8), there are substantial amounts of poplar that should be harvested, according to the Forest Management Plan, but which are not harvested. This has been a long-standing problem in many parts of Ontario, although as hardwood demand increases, it is becoming less of an issue.

As has been noted above, the part of Domtar's harvest that is undertaken by union members results in more expensive wood than is produced by contractors. Domtar is willing and able to sell this wood but logically refuses to do so at a loss, while hardwood users do not want to pay a price that Domtar considers to be fair. Domtar does direct its union workforce to conifer dominated stands, and so tries to minimize the amount of poplar that is left behind. The Company is able to have some second pass harvesting undertaken, but the volumes per hectare are low and it is not rewarding work for contractors.

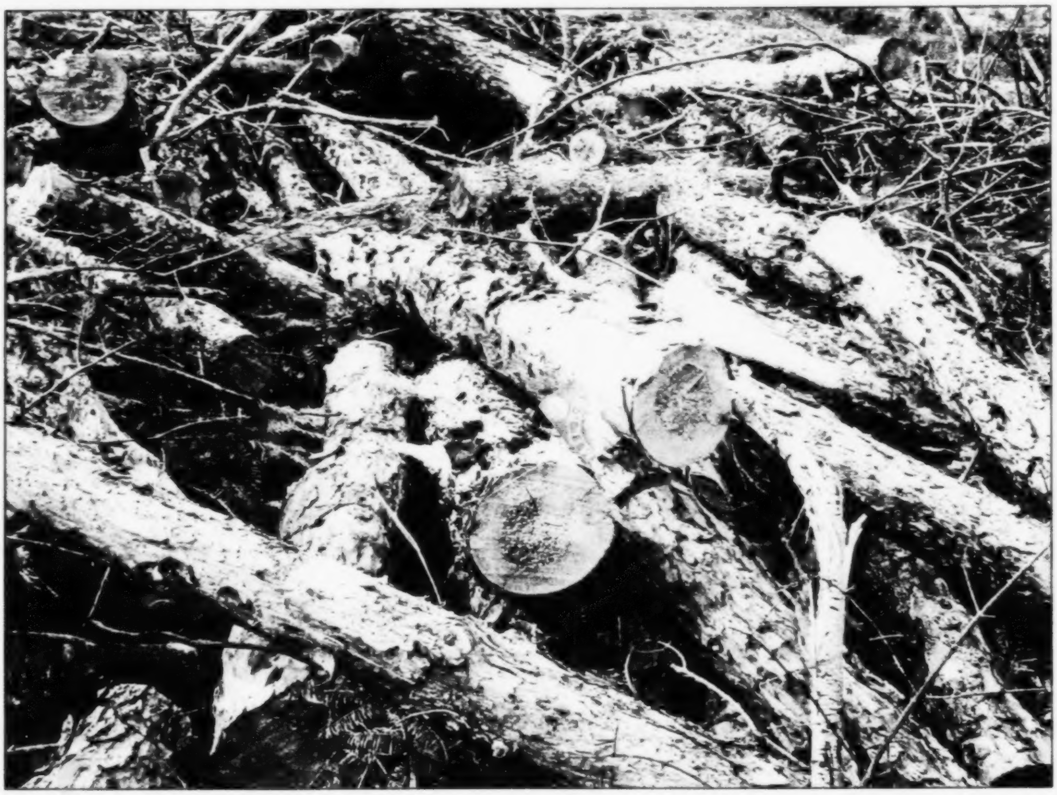

Figure 7. Example of merchantable timber remaining in roadside slash along the Metagama Rd.

On the other parts of the licence area, haul distance and cost come into play, and hardwood, which has a lower value at the mill gate than conifer, was plentiful in the area around the Spanish Forest, according to the 2000 FMP. A further factor is that the NDPEG requires an average of 25 standing trees to be left per hectare of harvest area for wildlife purposes, and while the NDPEG does not requires the residuals to be reflective of the original stand, poplar trees do tend to make good wildlife trees.

The relative lack of harvest of hardwoods does have consequences in that it may increase the proportion of hardwood in the succeeding stand, which may be undesirable, especially in light of the Company's objective of substantially increasing the jack pine component of the Forest.

It is anticipated that demand and supply of hardwood will continue to move closer into balance in the next 5 – 10 years, which would also eventually solve this problem. One thing that Grant Forest Products (a commitment holder) argued was that it should be given more advance notice when Domtar knows, or strongly suspects that a hardwood block is not going to be harvested by it during the plan period. Grant does have contractors (as may Norbord – another commitment holder) that would undertake the harvest operation, and the following suggestion is made to encourage this.

Suggestion # 11

The Company should consider approaches for accelerating the process of deciding when it will not be harvesting stands allocated in the FMP and provide prompt notice of their availability to other potential harvest operators.

Soil Disturbance

The amount of unnecessary soil disturbance (rutting, compaction, and erosion) resulting from the harvesting and site preparation operations that the audit team observed during the field assessments appeared to be minimal over the entire forest. Most of the soils on the Spanish Forest are coarse-textured materials, such as sands and sandy loams, which are less susceptible to rutting and compaction than fine-textured materials such as silts and clays. On the sites we viewed, we saw only a few isolated instances of rutting. These had occurred mostly on areas of rugged terrain, in moist to wet areas located in small depressions. In general, the harvest equipment operators had done a good job of recognizing these situations and minimizing unnecessary disturbance on these areas and on all other sites. Site preparation operators had done a good job of avoiding sensitive areas, such as wet pockets, and had aligned the site preparation patterns well with the terrain to minimize the risk of erosion. In the audit team's professional opinion, soil disturbance was not an issue on the Spanish Forest.

3.4.3 Renewal

Overall, on the sites that were observed in the field during the audit, the silvicultural treatments were consistent with the silvicultural ground rules and forest operations prescriptions. The boundaries and coverage of site preparation, planting, and tending projects were good. The areas we reviewed in the field were well-matched to the areas mapped and reported in the ARs. The treatments were well-matched to actual site conditions and appeared to be effective in meeting the silvicultural objectives.

Natural Regeneration

Domtar's approach to mapping and reporting natural regeneration areas is first to identify untreated areas within harvest blocks using their GIS during the preparation of annual reports. These areas are surveyed to determine their potential for natural regeneration, then are either reported as natural areas or scheduled for further treatment if necessary. We reviewed 1,210 ha of natural regeneration areas in the field, including 340 ha of uniform shelterwood cuts on white and red pine areas. In general these areas were regenerating well. Many of the clearcut natural regeneration sites had significant residual trees and advance growth left after the harvest.

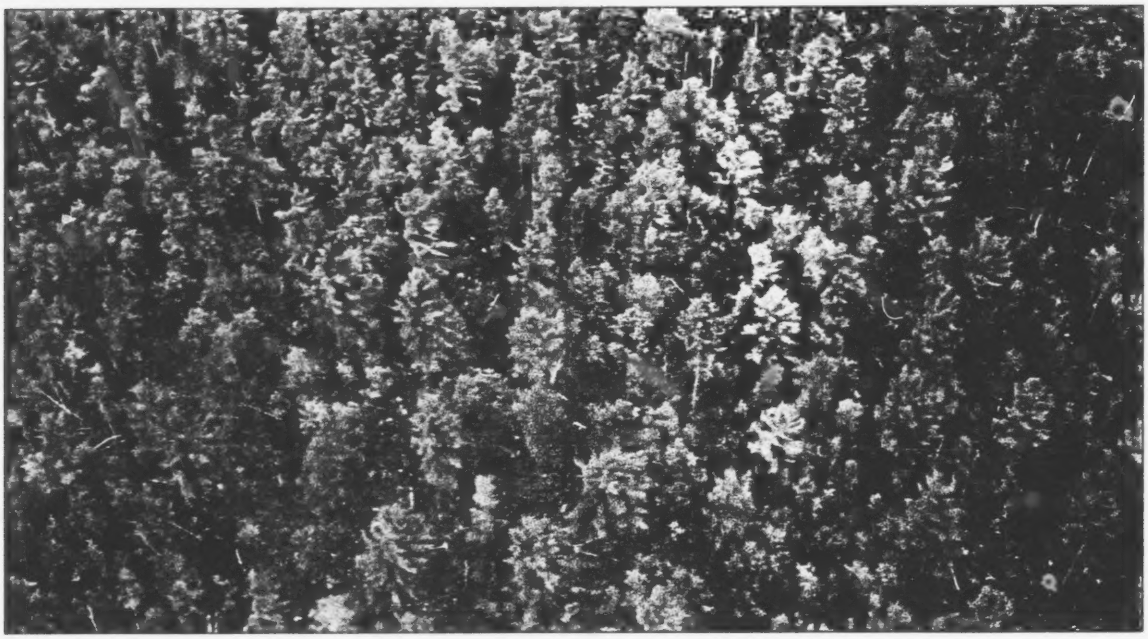

Figure 8. Aerial view of a typical example of a white pine area harvested under the uniform shelterwood system; site located in base map 74424.

Site Preparation

For the sites we reviewed in the field, the choices of site preparation treatments were appropriate for the site conditions, and the coverage and quality of the treatments was good. During the audit period, the site preparation was conducted with a variety of equipment, including powered and passive trenching equipment, and dozer-mounted Young's Teeth.

Tree Planting

Species choices for tree planting were generally well-matched to the observed site conditions. Domtar has also done a good job of directing species within planting projects to site-specific terrain. During the audit period, the Company planted over 22 million trees. The relative proportions of jack pine, black spruce, white spruce, red pine and white pine planted were appropriate for the forest units on the harvested area and were consistent with FMP objectives.

Seeding

Domtar conducts a considerable amount of jack pine aerial seeding on the Spanish Forest. The 2000-2005 FMP forecast over 16,000 ha of seeding treatments, or approximately 29% of the total renewal effort . Generally, the direct seeding treatments we observed in the field were of excellent quality Figure 9. Density and survival of the seeded stock was good in most cases, although stocking was somewhat lower where seeding had been conducted on mixed conifer areas, where there was heavier competition from shrubs and hardwood suckering, however, these latter sites would still meet the silvicultural standards. Many of these sites had been tended to ensure survival and growth of the seeded stock.

There are a number of factors that will affect the seeding program in the future. There will be an increasing need for competition control due to the nature of the site conditions to be encountered in future plans. There will be more mixedwood sites and fewer of the pure jack pine and upland conifer sites that are most suitable for seeding. At the same time, Domtar has a corporate policy to reduce herbicide use. A reduction in the amount of chemical cleaning will limit the effectiveness of seeding on some sites. Changes in the harvest operations due to Domtar's move to harvest processors, and the implementation of the Natural Disturbance Pattern Emulation Guidelines will mean that there will be more slash, coarse woody debris, and residual trees on harvest sites, which will reduce the effectiveness of mechanical site preparation for seeding on some sites. In consideration of these factors, seeding forecasts in the 2005-2010 FMP have been reduced to approximately 21% of the total renewal effort.

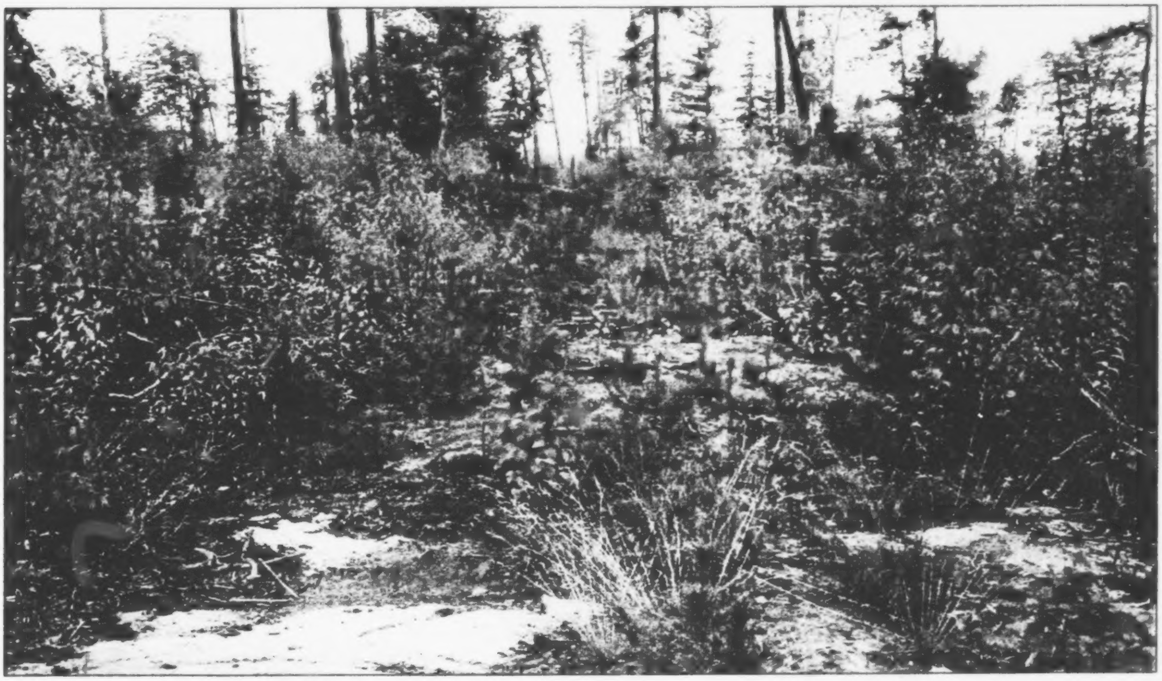

Figure 9. Typical example of a jack pine direct seeding project showing good stocking and growth; site located in base map 74015.

Silvicultural Achievements

Table 6 compares the planned targets for renewal, site preparation, and tending with the actual achievements for the 2000-2005 planning term on the Spanish Forest. Since the actual clearcut harvest area achieved during the FMP term was only 66% of planned (34% for shelterwood harvest), the original renewal and site preparation forecasts in FMP-25 have been adjusted by the same factors to calculate the proportions of the forecast areas that were actually treated. The tending forecasts were not adjusted, since the area available for tending is less dependent on the harvest area from the current term.

Table 6. Silvicultural accomplishments for the 2000-2005 FMP term as a percentage of the planned activities for the Spanish Forest.

Activity	Planned area (2005 FMP-25)	Planned area indexed to actual harvest, 2000-2005	Total area treated, 2000-2005 (ha)	Proportion of indexed planned area treated, 2000-2005
Uneven-aged management	637	0	0	na
Even-aged management – Natural Regen.				
Clearcut	22,600	14,916	7,026	47.1%
Shelterwood and seed tree cut	3,740	1,285	670	52.1%
Total Natural regeneration	26,340	17,384	7,696	44.3%
Even-aged management – Artif. Regen.				
Planting	14,417	9,515	15,066	158.3%
Seeding	16,591	10,950	7,722	70.5%
Total Artificial Regeneration	31,008	20,465	22,788	111.3%
Total Regeneration	57,985	37,850	30,484	80.5%
Mechanical SIP	32,559	21,489	21,099	98.2%
Chemical SIP	628	414	101	24.4%
Total Site Preparation	33,187	21,903	21,200	96.8%
Tending				
Manual cleaning	300		0	0.0%
Release – ground	628		461	73.4%
Release – aerial	25,000		25,373	101.5%
Pre-commercial thinning	2,000		1,650	82.5%
Total Tending	27,928	na	27,484	98.4%

The artificial regeneration program for the 2000-2005 FMP has been overachieved compared to forecast levels, with 158% of the planned tree planting, and 71% of the seeding implemented during the 2000-2005 FMP term, for a combined total of 111% of the planned artificial regeneration. The actual area site prepared was 97% of the planned level and was slightly less than the treated area.

In the four-year period from 2000 to 2003, Domtar planted 22,135,000 trees, including 16.7 million jack pine, 2.2 million white spruce, 0.9 million black spruce, 1.5 million white pine, and 0.8 million red pine. The total numbers of trees planted and the distribution of species were very close to the forecast levels.

Natural regeneration targets have not been achieved, with 47% of the planned clearcut natural regeneration, and 52% of the planned uniform shelterwood seed tree cut areas reported during the 5-year FMP term (the actual shelterwood harvest was approximately 34% of planned).

The reason for the shortfall is twofold: 1) harvesting was not completed on many of the areas planned for harvesting under the shelterwood system, due to lack of suitable markets for white pine and tolerant hardwood during the FMP term, and 2) the Company has fallen behind in completing the surveys used to assess and report on natural regeneration areas.

In the 2000-2005 FMP, natural regeneration represented 45% of the total planned renewal effort, while in the 2005-2010 FMP, natural regeneration will account for 51% of the total renewal program, or approximately one-half of the total. Due to the importance of natural regeneration to the overall renewal program for the Spanish Forest, we believe that the balance of unreported natural regeneration area from the 2000-2005 FMP period should be carried forward into the subsequent FMP term(s). Since harvest levels during this FMP term were less than planned, the target for natural regeneration should be adjusted from the forecast levels in FMP-25 to match the actual harvest (i.e., reduced to 66% of the original forecast).

Recommendation # 12

By March 31, 2006, the Company should make appropriate adjustments to the renewal targets in the 2005-2010 FMP to ensure that the balance of unreported natural regeneration area from the 2000-2005 FMP term is carried forward. The Company should take appropriate measures to ensure that the reporting of natural regeneration will substantially meet the 2005-2010 FMP forecasts on an annual basis.

3.4.4 Tending and Protection

For the 2000-2005 FMP term the tending program was implemented as planned, with 98% of the total tending forecast achieved. Most of the cleaning is done by aerial application of herbicides. Ground herbicide application for cleaning purposes is used near sensitive areas or where there are public concerns over aerial herbicide use. The cleaning treatments we observed in the field were of excellent quality. The treatments were appropriate for the site conditions and renewal treatments (i.e., were needed for competition control), were effective and showed good control of the application boundaries. No non-compliances were reported for the cleaning program.

The pre-commercial thinning projects we reviewed in the field had been well-implemented according to the site-specific prescriptions, with little or no residual damage to the trees and good density control. The stand condition and ages of the areas selected for thinning were also appropriate. The area treated during the 2000-2005 FMP term was less than planned (approximately 83% of forecast), but this is due to fewer suitable stands being available and accessible than was forecast.

Reduction of the use of herbicides is a corporate policy of Domtar and is referenced in the silvicultural strategies in the 2000-2005 FMP. The area treated with herbicides during the FMP term was essentially equal to the forecast area, but annual usage of herbicides over the five-year period shows a declining trend, as illustrated in Figure 10.

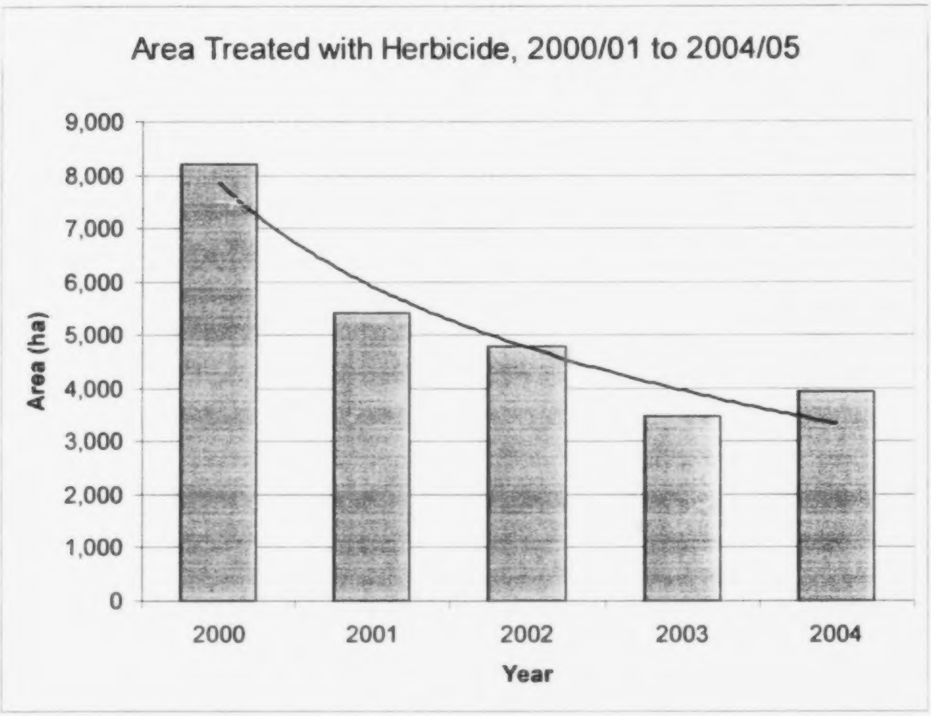

Figure 10. Trend in Herbicide Use on the Spanish Forest.

3.4.5 Renewal Support

The Company has a good program for the collection and processing of cones and seeds, and presently maintains an adequate seed stock to support its artificial regeneration program through the current FMP period. At March 31, 2005, the Company had a stock of approximately 456 million jack pine, 41.5 million white spruce, 25 million black spruce, 1.8 million white pine, and 4.2 million red pine seeds.

For the 2000-2005 FMP term for the Spanish Forest, the Company exceeded its planned seed collection targets for all species except for jack pine (80% of forecast) and white pine (86% of forecast). The shortfalls were due to the availability of these species in the blocks harvested during the FMP term, and in the case of white pine, the periodicity of cone crops. Given the large quantities of high-quality seed currently in storage, these shortfalls will not have any detrimental effects on the silviculture program. The program for growing trees for planting is also adequate and the Company works with local growers to ensure consistent quality. The outplanted seedlings we observed in the field all appeared to be of excellent quality.

3.4.6 Access

Road Maintenance

In the course of conducting the road-based inspection of the forest, the Audit Team drove on approximately 800 km of logging roads. On some roads, maintenance seemed fine, but on others, the quality of the road surface was poor. Deficiencies noted by the audit team included:

- False ditching - Grading of gravel roads should be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded material on the road shoulder or by excavation of false ditches in the shoulder. For many kilometres of roads inspected, an accumulation of roadbed material on the shoulder was apparent. This creates artificial ditches by impeding the flow of water off the roadbed.
- Washouts– In several places washouts had created unsafe road conditions,
- Grading on to bridge surfaces – as discussed below gravel accumulation on bridge surfaces can decrease the life of bridge surfaces and cause safety hazards.
- Widening of the roadbed. When grading operations continually grade materials from the centre of the road outward, the roadbed "creeps" outward becoming unnecessarily wide and resulting in accumulations of roadbed material on the shoulder.

Road maintenance on the Forest reflected a variety of skill levels in grader operation. The audit team noted that the Company does not have standard operating procedures or work instructions for road maintenance in its EMS. Although the EMS itself is a company initiative and outside the scope of the audit, the audit team believes that the absence of road maintenance considerations is indicative of a missing training component.

Recommendation # 13

The Company should ensure that adequate training related to road maintenance is provided to its staff and that appropriate training messages are provided to contractor staff.

Water Crossings

During the audit, we inspected 13 bridges and many culvert installations. MNR staff expressed concern with the quality of some of the water crossings, and in general, the audit team agrees with their concerns. The issues of most concern were accumulation of gravel on the surface of bridges, missing or inadequate curbs and side-rails, and missing warning signs. The accumulation of gravel on the surface of bridges was considerable in some instances – the audit team measured more than 5" of gravel accumulation in places on two bridges. On one bridge, the accumulation was up to the level of the too-low side-rail, causing a safety hazard. This level of accumulation is likely caused by graders pushing gravel onto the surface of bridges, but may also be contributed to by winter sanding operations. Not only does gravel on the surface of bridges increase the wear and tear on the bridge surface and decrease its life span, but it also may have detrimental effects on the waterway below the bridge as gravel and sediment falls through slats in the bridge. Even though it is reasonable to expect that some gravel will be

carried onto bridges as a result of normal traffic, accumulation to the extent witnessed should not be allowed to occur – the bridges should be intermittently cleared of gravel. The need to fix the bridges is addressed in Recommendation # 14.

Of particular concern to the audit team is the fact that this the issue of poor bridge maintenance and grading practices was noted in the previous audit (Recommendation #4 in the 2000 IFA). It is the opinion of the audit team that the actions taken to address the issue have not been effective.

Recommendation # 14

By March 31, 2006 the Company and Ministry should jointly decide on the repairs required to all bridges on primary and secondary roads, and develop a timetable to which the company should commit for making the repairs.

Most culvert installations viewed by the audit team were satisfactory. A couple were plugged by recent beaver activity, but these occurrences are normal in northern forests. However, one particular culvert installation viewed by the audit team bears specific mention. The crossing over Wapejo Creek on the Metagama Road was severely damaged (Figure 11), and apparently had been in its present state for several years. The MNR provided records to show that they had drawn this situation to the company's attention at least two years ago. The damaged culvert is one of two at the location which provide for water flow under the road. Although the single existing undamaged culvert has provided for unimpeded water flow for the past few years, it may not be sufficient to provide adequate passage during times of very high flow. The cost of replacing such a culvert will be high. If watershed flow calculations show that the existing culvert is sufficient to meet MNR standards, then it may not be necessary to replace the culvert. However, if the existing lone functional culvert is not sufficient to meet contemporary standards, then the situation will need to be addressed.

Recommendation # 15

The MNR and company should determine whether a new culvert is required at the Wapejo Creek crossing using current MNR standards. If a new culvert is required, the company should replace the existing damaged one.

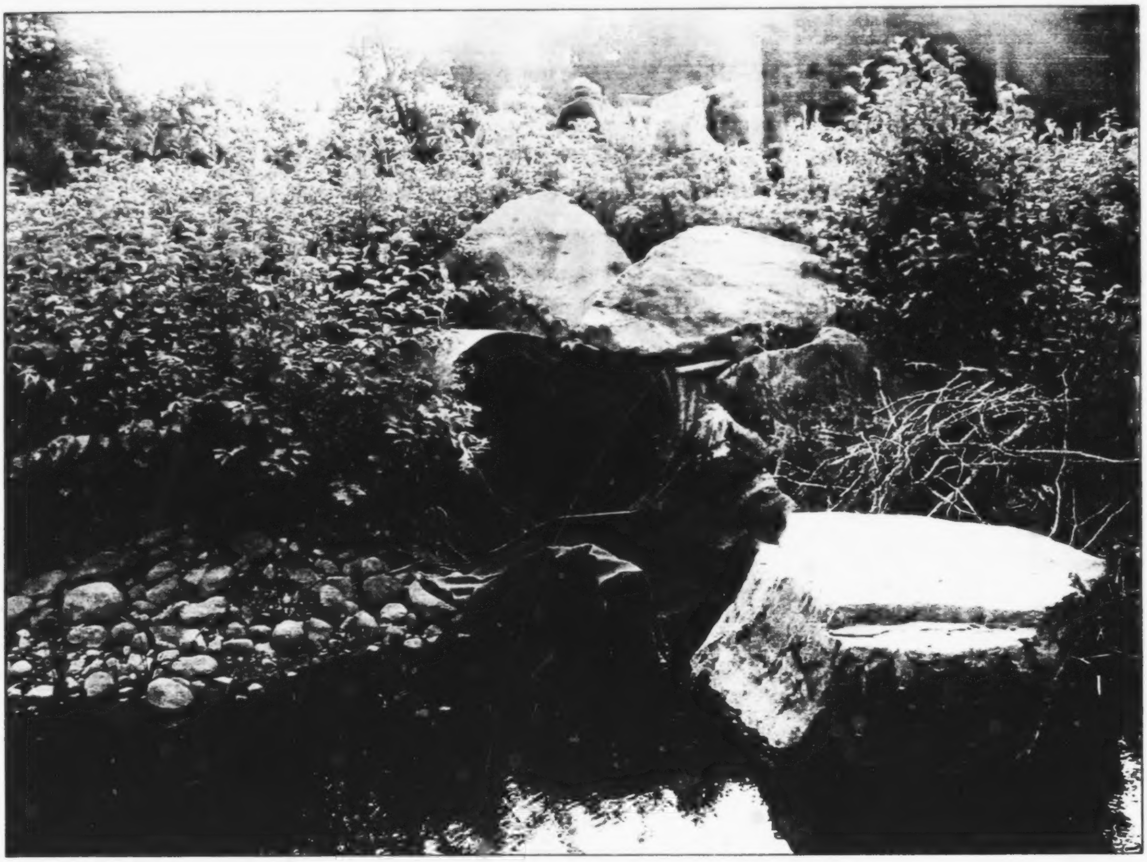

Figure 11. Damaged culvert at Wapejo Creek on the Mettagama Road.

Access Restrictions

As noted earlier, the Spanish Forest is highly used by commercial tourist operations and recreationalists. This fact is reflected in the documentation of the mitigative measures developed in response to specific issues which arose in the development of the 2000 FMP. Of the 24 specific issues that were addressed, 20 were related to tourism concerns.

The multi-use nature of the Spanish Forest has led to the use of restrictions to control access in several parts of the Forest. Most restrictions are in the form of signs informing the public of travel and use prohibitions, but there are also seven gates on the Forest (Figure 12). The gates have been placed mostly in response to specific concerns brought forward by members of the tourist industry. Wherever gates are used to restrict access in Crown forests, they seem to pose a challenge to a small portion of the public and they are vandalized or broken with frustrating frequency, and has been the case in some instances on the Spanish Forest. The gates are also the source of some friction between the company and MNR, with the company staff expressing frustration that they have been held responsible for the maintenance and repair of some gates even though they and their contractors/employees have not been responsible for causing damage. The Ministry contends that because the roads are there to facilitate access to the forest for the forest industry, the company bears on-going responsibility for the integrity of the gates. Neither the company nor the Ministry finds the status quo particularly appealing, but as it seems to represent a moderately tenable situation the audit team will not make any recommendations or suggestions on this issue.

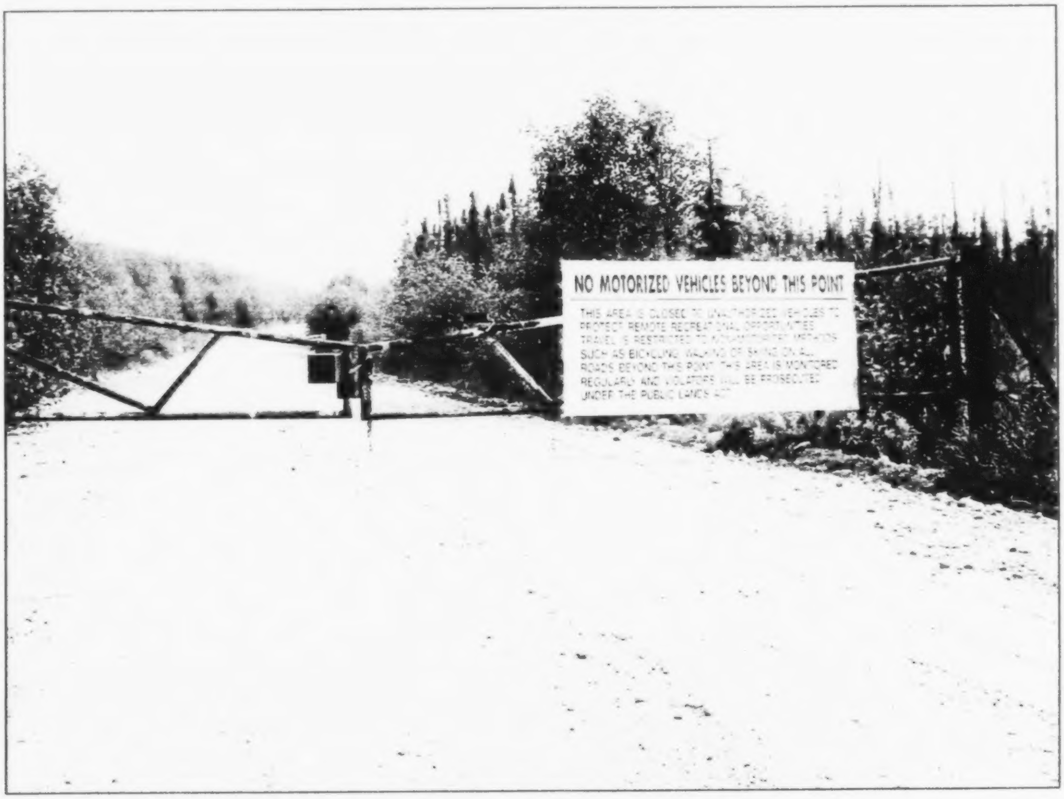

Figure 12. Signed gate on the Spanish Forest

The access issue of most consequence to the company is the set of seasonal use restrictions related to two bridges which cross the Spanish River. In the 1990's two bridges were constructed across the Spanish River – one across the east branch and one across the west branch to facilitate access to, and hauling from an area of land between the east and west branches of the Spanish River. The Spanish River Special Area plan, recognized in the District Land Use Guidelines of all three districts with management responsibilities in the Spanish Forest, indicates that no timber hauling should occur on the bridge over the west branch of the river during the months of June, July, and August each year, and that under normal circumstances the east branch bridge would not be used for hauling timber. The plan goes on to state that there may be extenuating or exceptional circumstances when there is a need to haul timber across the east branch bridge. In recognition of such circumstances, the company has been provided with permission to haul across the east branch for winter months (times of low recreational use of the Spanish River) in years in which it has made representation to the MNR to do so.

Since the time of the Spanish River Special Area plan approval, a number of changes have occurred which the company believes should be considered in the discussion of how to manage this area. Originally, the requirement to prohibit hauling wood over the east bridge was not burdensome on the company because the mix of species and wood sizes that were being harvested were destined for mills west of the harvest locations. In addition, the company had constructed a railway siding to carry wood from the sites between the two bridges. However, the mix of species and sizes harvested has changed as has the economics of rail-based hauling and the company now desires less (or no) restrictions on hauling from the areas between the two bridges.

The Ministry notes that the history of restrictions on hauling across the bridges has a context in recognition of the special values of the Spanish River Special Area. Through the Living Legacy, the Spanish River is now a park and the abutting areas also have conservation designations which have resulted in the development of a draft official plan for the Spanish River Valley Signature Site. The Ministry of Natural Resources also recognizes the validity of the company's concerns and has attempted to incorporate those into direction for dealing with hauling across the bridges provided in the draft plan for the Signature Site. Ultimately the planning teams will be responsible for identifying which of the options identified in the draft plan will be employed in managing access and transportation across the bridges.

The Ministry and the company have invested considerable effort in this issue, and the development of the draft plan for the Signature Site is the product of a significant amount of thought and consideration. With that context, the audit team believes that the process of grappling with different perspectives on the crossings has been thorough, and the audit team is not inclined to meddle in the resolution of the issue by way of recommendations or suggestions.

3.5 SYSTEMS SUPPORT

3.5.1 Human Resources

Domtar's Northeast Ontario EMS framework provides an excellent platform for the continuous improvement of forest operations. It contains a wide range of Standard Operating Procedures (SOP) and Work Instructions (WI) to address forest management planning, access, harvest, forest renewal and maintenance and environmental protection. It also contains specific Management System Procedures (MSP) for Training, Training Planning, Awareness, Competence and Training Records and SOPs for Harvesting Contractor EMS Roles and Responsibilities.

An EMS training matrix is used to determine which staff and contractor employees should receive training for specific SOPs. Training materials including Power-point presentations and an EMS field guide. These resources are used on an ongoing basis to train new staff and are made available to contractors to train their field workers. A review of training summaries indicates that training sessions are well attended. Accordingly, Domtar personnel are provided with training related to the implementation of SOPs while contractors are responsible for providing training to their own forest workers, reflecting Domtar's organizational shift towards contractor operations and increased responsibilities for the supervision and management of forest management activities.

Interviews and field observation suggest that staff and contractors generally possess the necessary credentials and skills to perform their duties, however, analysis of compliance records in Section 3.6.1 suggests that contractor supervision and/or training may be inadequate, especially with respect to water crossings, access conditions and utilization. Interviews suggest that personnel understand their duties although they face heavy workloads and are often challenged to keep up with their day to day commitments. The backlog of outstanding blocks lacking "completed" compliance reports noted in Section 3.6.1 serves to demonstrate this point. Nevertheless, EMS implementation should eventually lead to improved field performance under Domtar's current organizational structure.

Domtar's EMS also contains provisions for the maintenance of an inventory of legal and other requirements, communication of these requirements to employees and contractors, and semi-annual updates of Federal and Provincial Legislation. Updates are provided to Domtar electronically by an external legal tracking service for dissemination to Domtar staff. Domtar currently makes this information available to its contractors via the internet. Alternately, summaries of relevant laws, manuals, and guidelines are available via the internet through the Government of Ontario.

MNR personnel are very experienced and aware of their responsibilities. MNR has a well organized and effective training program in place to provide the most current direction and interpretations to both MNR and Company staff involved with the development of forest management plans. It is centrally administered from Sault Ste. Marie, with a series of FMP training modules held regionally each year for all active planning teams. This is the main mechanism through which MNR strategic direction is implemented at the forest level. Review of the planning team minutes suggests that training sessions for the 2005 FMP were well attended by both the industry and MNR members of the planning team.

As described earlier, the Sudbury District, through its Espanola Area Office, performs the leading role with respect to the administration and regulation of the Spanish Forest. Although personnel in Espanola were heavily taxed by workloads associated with the performance of forest operations inspections, as well as the review and approval of forest management plans and amendments, annual work schedules and revisions, and annual reports, personnel in Chapleau and Timmins were less heavily burdened in relation to the Spanish Forest. In fact, the relatively low number of compliance inspections performed by these personnel would suggest that the Spanish Forest is a lower priority for the two assisting Districts. Accordingly, recommendations are made in Section 3.6 to improve the effectiveness of planning for compliance monitoring on the Spanish Forest.

Although personnel in the Sudbury District have maintained a satisfactory level of oversight in the performance in their daily duties, increasing demands on time and resources have the potential to draw them away from their core responsibilities. Nevertheless, they were able to draw upon their extensive experience and make pragmatic choices when faced with competing priorities. In contrast, the two assisting Districts appear to have placed a lower degree of emphasis on the Spanish Forest and have presumably committed their resources to higher priority programs or forests within their Districts. This is especially evident with respect to compliance monitoring and the follow-up to identified compliance issues, as is discussed in Section 3.6.1.

3.5.2 Documentation and Quality Control

As previously indicated, Domtar's Northeast Ontario EMS framework provides an excellent platform for the continuous improvement of forest operations. In addition to SOPs and WIs for many aspects of forest management planning, it also contains a MSP for EMS Document Control, Development and Maintenance. Although it provides detailed instructions regarding the identification, review and approval, and modification of controlled EMS documents, it does little to describe control mechanisms for non-EMS documents (e.g., FMP & AWS) except to include them in a master document list and assign responsibility for their upkeep.

For example, MSP-08, Instruction 7.8 stipulates that "The Management Forester contains the only controlled version of FMP/AWS documentation. All other copies are uncontrolled. Controlled versions will be identified as controlled and will include applicable control footer information such as revision date." In spite of this instruction, the audit team observed that it was difficult to track various processes and verify document and record transfer (e.g., annual report submission, review and resubmission) due to the lack of labels, date stamps, covering letters and failure to retain copies of preliminary and draft versions. Also, it was difficult to obtain the correct versions of various historic documents (e.g., RPFO, FOCIS) due to electronic misfiling.

In spite of these particular document control issues, the majority of documents and records were well-organized and easy to retrieve. In the long term, the existing EMS framework holds great promise for the improved control of FMP documents and records should Domtar choose to expand the breadth of the EMS to include instructions for the creation, maintenance and retention of such documents.

Although many MNR documents and records were well-organized, there were also a number of inadequately documented FMP processes and procedures. Specific examples include but are not limited to the following:

- Inconsistent quality of planning team minutes;
- Poorly organized public consultation documents and correspondence;
- Poor filing of Forest Management Native Consultation Program documents; and
- Incomplete documentation of delivery of amendments to specified locations.

In addition, it was often difficult to verify the receipt and approval of various records (e.g., annual reports) due to a lack of labels, date stamps, and covering letters.

In summary, although the majority of documents and records were well-organized and easy to retrieve, both MNR and Domtar can work to improve their communications and internal procedures for the documentation of forest management planning processes and the distribution and receipt of pertinent documents and records. Specific recommendations to address identified shortcomings are provided in other sections of this report.

3.6 MONITORING

3.6.1 General Monitoring

Compliance Planning

The Sudbury District is the main District for the MNR compliance monitoring program on the Spanish Forest. The program is primarily implemented by personnel from the Area Office in Espanola, however, both Timmins and Chapleau District staff also perform compliance inspections on portions of the Spanish Forest that are located within their Districts. Separate MNR District Compliance Plans and Annual Compliance Operations Plans (ACOPs) exist for all three Districts and are administered on an Area basis, using different formats and target measures, making it exceedingly difficult to extract compliance strategies and targets specific to the Spanish Forest.

The *2004-05 Espanola Area Office Annual Forest Compliance Operations Plan* provided direction for the compliance monitoring program on the Sudbury District portion of the Spanish Forest in the final year of the audit term. It specified that MNR would perform up to 56 access-related inspections, 16 harvest-related inspections, and a minimum of 5 renewal-related inspections. The breakdown for each inspection type was provided based on operations scheduled in the 2004-05 AWS. Access inspections were to include regular water crossing inspections, joint inspections, removals, follow-up, road construction and road maintenance and verification inspections of all non-compliances while harvest inspections were to include random inspections, verification inspections and compliance audits. Previous ACOPs for 2002-03 and 2003-04 were similarly structured but contained different targets based on AWS operations. None of the ACOPs provided much detail regarding compliance history of specific concerns.

In contrast, the *2004-05 Timmins District Annual Compliance Operating Plan Annual Implementation Strategy* contained a summary of Resource Risks and Targets for Forestry in each Area but did not specify which applied to the Spanish Forest. Resource Risks and Targets for Forestry - Watershed Area committed to the verification of all industry-reported non-compliances and indicated that spot checks would be carried out on high risk areas and that a minimum of 10% of all completed harvest and access FOIP reports would be audited to ensure correct reporting of actual conditions. While a column exists to report effectiveness (e.g., the number of inspections performed) there were no numerical targets on which to base the determination of effectiveness. Although detailed Watershed Annual Forestry Compliance Priority Schedules exist as non-public documents for enforcement purposes, the degree to which these schedules were followed does not appear to have been incorporated into ACOPs.

The 2003-04 ACOP was structured somewhat differently and contained commitments to monitor road construction, maintenance and access restrictions, review the AWS & AR, and identify areas of operations from the AWS where compliance inspections and audits would be conducted, while the structure for the 2001-02 and 2002-03 ACOPs differed again with a more encompassing set of commitments. Although ACOP elements were cross-referenced to the five-year compliance strategy, virtually all of these objectives lacked quantifiable targets. In comparison, the 2000-01 ACOP seemed to lack a section on forest management altogether.

Finally, the *2004-05 Chapleau District Annual Compliance Operating Plan Annual Implementation Strategy* was identical in structure to the Timmins District ACOPs but contained different targets. More specifically, it contained targets to complete one inspection for each block with access operations and monitor completed crossings for compliance with FMP, AWS and related guidelines. It also included targets to monitor inadequate cross drainage and ponding on tertiary roads. There were also harvest-related targets to audit/inspect 20% of company harvest blocks based on a priority rating system and conduct random spot checks during operations that target higher risk sites. In addition, it committed to the development of an inspection schedule following AWS approval, investigating all instances of non-compliance and submitting reports within the required timelines. The 2003-04 ACOP was almost identical to the 2004-05 ACOP except that it contained less detail while ACOPs for the remainder of the audit term (2000-01, 2001-02 and 2002-03) were not made available to the audit team.

Overall, ACOPs from all three Districts provided little insight into compliance history and trends and contained few mechanisms to track progress against targets. Given the lack of forest-specific and quantifiable targets, especially in the Timmins and Chapleau District ACOPs, it was difficult for the audit team to evaluate the effectiveness of the overall compliance monitoring program or determine whether it was implemented in accordance with the ACOPs. Even so, it was possible to identify some trends and draw general conclusions from the comparison of ACOP targets with the number of documented inspections shown in Table AR-12.2.

For example, the Espanola Area Office ACOP for 2004-05 had a target of a total of 77 inspections. In comparison, annual inspection levels during the audit term ranged from 21 to 70 inspections for all 3 Districts combined, and so fell significantly short of stated targets for just the Sudbury District. This is mitigated to some extent the fact that the AWS harvest area is basis of the ACOP targets, and as discussed, the AWS planned harvest area greatly exceeded the actual harvest during the audit period, especially in the final three years. Also, the AR-12.2 tables indicate that only 6 renewal inspections were performed from 2000 to 2004. This is clearly deficient with respect to the Espanola ACOP target to perform at least one inspection annually for each renewal activity.

Also, it appears there may have also been disproportionate levels of compliance monitoring activity between Districts. For example, from April 1, 2004 to March 31, 2005, Sudbury District staff performed 42 inspections while Chapleau District staff performed 25 and Timmins District 7. However, this finding cannot be considered fully conclusive without knowing the exact proportion of harvest activity within each District.

Given the inability to determine whether or not the compliance monitoring program was implemented in accordance with District ACOPS, the following recommendation is made to improve the overall administration and effectiveness of the compliance monitoring program for the Spanish Forest.

Recommendation # 16

MNR Sudbury District should take the lead in writing a Spanish Forest ACOP containing relevant analysis, consistent direction, and specific quantitative compliance targets for the Spanish Forest for 2006-2007 and annually thereafter.

Regarding the production of Five-Year MNR District Compliance Plans (5-Year Plans), only Chapleau District appears to have fulfilled this requirement with production of the *Chapleau District Five Year Compliance Strategy Report*. However, discussions with Compliance Branch staff indicate that Districts were advised in 2004 that they were no longer required to prepare 5-Year Plans at the District level. Rather, the intent is to move towards a Regional risk-based planning framework for compliance and enforcement activities. In order to harmonize policy with current practice, the audit team would expect to see this direction formalized with instructions for the upcoming preparation of 2006 ACOPs.

Section 2.5 of the 2000-2020 FMP contained a discussion of the monitoring programs to be used during the five-year term of the plan. The text explained that there were no silvicultural treatments scheduled during the plan period which were exceptions to the silvicultural guides, therefore no effectiveness monitoring program was required. Similarly, there were no AOC prescriptions which were exceptions to the implementation manuals. The text did provide a good summary of Domtar's program for the assessment of regeneration success which involves performing second and fifth year stocking surveys on all artificially regenerated areas, as well as free-to-grow surveys on all areas seven years following establishment. Additionally, there was discussion of the role of the LCC's in monitoring the implementation of the forest management plan.

However, discussion of the compliance monitoring program was essentially limited to making reference to the Compliance Plan for the Spanish Forest located in the FMP Supplementary Documentation. This reference fails to meet the explicit requirement of the FMPM (1996) to contain a "general description of the FOIP and specific provisions for monitoring operations in individual areas of concern and groups of areas of concern with common values".

Ultimately, this shortcoming was addressed in Section 2.5 of the 2005 FMP which does contain an adequate description of the compliance monitoring program. Again, no exceptions to the silvicultural guides were identified, therefore no effectiveness monitoring program was required. However, identified exceptions to recommendations in the forest management guidelines were to be monitored in the Annual Compliance Schedule. As per the 2000 FMP, the 2005 FMP contains a good summary of Domtar's program for the assessment of regeneration success.

The five-year *Compliance Plan for the Spanish Forest* was included as Appendix "R" in the 2000 FMP. This document provided the framework for developing Company Annual Plans of Action (APAs) during the five-year term of the audit (e.g., 2000 to 2005). Similarly, the Spanish Forest Compliance Plan included in the 2005 FMP provides the framework for the development of Company APAs from 2005 to 2010.

The former document was prepared in accordance with the guidance document *Understanding Compliance in Forest Operations, a Working Paper, September 18, 1996* and fully met the requirements of the *Guideline for Forest Industry Compliance Planning (1998)*. It provided the context for development of the compliance plan and described the geographic area to which it applied. It also provided a description of the land use zones which required special operating consideration and described how special values were incorporated into the FMP through Operational Prescriptions for Areas of Concern. It also contained a brief summary of past, present and anticipated compliance problems.

The plan also stated the overall goal of the forest compliance program and outlined objectives and detailed strategies to achieve those goals. Finally, it described the roles and responsibilities of those performing various compliance activities, including Domtar staff and third party operators. It also assigned responsibility for prevention, monitoring and reporting, as well as responsibility for corrective action and follow up.

With respect to Domtar Annual Plans of Action, these generally met the requirements of the *Guideline for Forest Industry Compliance Planning (2001)* except for the particularly notable absence of detailed inspection reporting schedules and insufficient discussion of compliance priorities.

For example, while the Monitoring Inspection Reporting Schedule contained within the *2004-05 Annual Compliance Schedule for the Spanish Forest* (APA) described the type of inspections and frequency requirements for each type of inspection that will occur during the annual work schedule period, it did not include a detailed Inspection/Reporting Schedule containing inspection targets for each harvest block, renewal block, water crossing installation and access road construction as required by the Guideline.

Although the APA does contain a commitment to advise the MNR of the blocks to be grouped for compliance monitoring purposes and the approximate order in which blocks will be operated prior to April 1st, there is no evidence that this has occurred. Even so, this still fails to meet the explicit requirement for a schedule of planned inspections/reports for each operation type.

Furthermore, the company recently produced a Spanish Forest 2005-06 Start-Up Binder containing the current APA as well as *Spanish Forest 2005-2006 Compliance Monitoring FOIP Reporting Requirements and Reporting Record* for road construction, harvest, water crossings, renewal and maintenance activities. Although it contains block areas and indicates whether an in-progress report is required, it contains no information on the timing of operations (e.g., forecast start date) or reference to the specific resource values present (e.g., AOC prescriptions associated with each block). Rather, it is more of a block checklist on which to record completed inspections. Domtar may wish to build upon the structure of this table to meet this requirement in the future.

Also, the 2004-2005 APA contained a brief summary of annual compliance priorities but provided no rationale for their selection, thus failing to meet the Guideline requirement to perform an assessment of various factors and considerations in order to identify revised compliance priorities. Although APAs from previous years contain better summaries of annual compliance priorities and provided some degree of discussion regarding relevant factors and considerations, these documents share a common structure with the 2004-2005 APA and suffer from the same lack of a detailed Inspection Reporting Schedule.

Recommendation # 17

Domtar should include Monitoring Inspection Reporting Schedules and an expanded discussion of compliance history and analysis of compliance priorities in future Annual Forest Compliance Plans.

Compliance Monitoring and Performance

Generally speaking, the overall level of compliance monitoring on the Spanish Forest is more than sufficient for the scale of operations. For example, industry performed approximately 885 inspections during the five-year term of the audit as derived from Tables 12.1 and FOCIS/FOIP data. Of these, 561 were for harvest operations, 279 for access, 27 for renewal and 18 for protection. During the same period, MNR performed approximately 280 inspections. Of these, 149 were for harvest operations, 121 for access, and 10 for renewal.

Industry reported 19 harvest related non-compliances, 11 access related non-compliances and 1 maintenance related non-compliance for a total of 31 non-compliances during the same five-year term. Of these all were reported by Domtar and its contractors. The number of industry related non-compliances varied from 4 to 10 per year (e.g., 7, 4, 10, 4 & 6 from 2000-01 to 2004-05 respectively). Although no consistent trend towards improvement is evident, lower numbers of non-compliance in the latter two years of the term may suggest some progress in reducing the number of non-compliances.

Similarly, MNR reported 17 harvest related non-compliances during the same period. In contrast, however, MNR reported 23 access related non-compliances for a total of 40 reported non-compliances. The number of MNR reported non-compliances varied from 3 to 14 per year (e.g., 3, 14, 4, 8 & 11 from 2000-01 to 2004-05 respectively. Again, no clear trend or improvement over time is evident. However, consistency between the categories of non-compliances reported by MNR and industry supports the idea that most types of non-compliances are being detected though in differing numbers.

The majority of industry-reported harvest infractions were for minor trespasses and utilization issues. Although Domtar staff indicated that the frequency of trespass has been reduced through the use of GPS equipment and implementation of standardized boundary marking techniques, MNR compliance inspectors noted that minor trespasses were still occurring into the current year because of incorrect marking. With respect to utilization, there were reported incidences of long butting and oversized tops.

The same trend was observed with MNR-reported non-compliances, many of which were verification audits of industry-reported non-compliances. Of 17 MNR reported non-compliances for harvesting operations, 15 were classified as minor while 2 were classified as moderate. However, MNR also detected wood movement and utilization issues that industry did not report.

For example, “Completed” harvest inspections were submitted by a Domtar contractor in March of 2005 for three harvest blocks in Bazett and Cavana Townships. These blocks were harvested in the 2004-05 fiscal year. An MNR spot check harvest inspection in August of 2005 revealed significant utilization issues in all three blocks related to roadside slashing, the result being that many merchantable 8 foot lengths were left on site. MNR directed Domtar to submit a clean up plan and explain how they would avoid this problem from happening in the future. As discussed in Section 3.4.2, Domtar is currently developing a comprehensive mill re-alignment and cut-to-length harvesting strategy to deal with this issue.

Industry reported access infractions were for road construction outside designated road corridors, road not built to standard, road clearings not in accordance with CFSA requirements, and failure to follow AWS crossing details. There were also a high number of “In Compliance with Comments" reports related to short and long term erosion protection, fish passage, traffic safety and structural integrity.

The same trend was observed with MNR reported non-compliances, some of which were verification audits of Industry reported non-compliances. Of 23 MNR reported non-compliances, 21 were classified as minor while 2 were classified as moderate. Although many road construction issues have been dealt with, differences in opinion regarding AWS crossing details and installation practices have resulted in MNR reporting a higher frequency of water crossing infractions (e.g., failing to follow AWS crossing details).

MNR also identified an unauthorized bridge installation on Bannerman Creek in January of 2005 which required the issuance of a stop work order. MNR issued a conditional release of the stop work order to expedite operations, however, Domtar failed to comply with one of the conditions of the release (submission of a completed FOIP report) and was subsequently charged with an additional infraction outside of the audit term.

As a result it is recommended that MNR and Domtar undertake a greater number of joint inspections to resolve on-ground differences of interpretation; calibrate operational standards applying to specific operations (e.g., water crossings, utilization, site damage); and for learning, communicating and clarification of issues. Joint inspections should be supported by remedial training or classroom instruction on targeted subject areas since the nature of many non-compliances suggests some level of misunderstanding regarding specific requirements of the FMP, AWS and various guidelines.

Recommendation # 18

Domtar staff, contractors and compliance inspectors should perform a greater number of joint inspections with MNR to develop a common understanding of operational standards applying to various types of operations. This strategy should be supported by remedial training on targeted subject areas.

For renewal operations, industry conducted 27 inspections during the audit term while MNR conducted 10. There were no identified non-compliances and only one instance of "in compliance with comments" reported by industry in 2002-03 for *Operating not in accordance the AWS of FMP*. With respect to protection operations, a single non-compliance was reported by industry.

Only 25 of 885 industry inspections were attributed to OLs (e.g., Grant Forest Products, Gervais, Sagamok and Roy). Of these 15 were for harvest and 10 for access with no non-compliances reported through self-compliance. At face value, the lack of non-compliances speaks well to the relative performance of OLs; however, MNR Espanola's Compliance History and Infractions Summary indicates that as many as five access-related non-compliances may have been reported by MNR for these parties.

New requirements in the Guideline for Forest Industry Compliance Planning (2005) require that either of the following conditions be satisfied in order for an OL to assume responsibilities for compliance planning, monitoring and reporting as well as the education and training of its workers: 1) The OL must hold an SFL themselves in the same company name but on another forest management unit; or 2) A large OL must demonstrate that it possesses the ability and resources to effectively assume additional responsibility.

For 2005-06, MNR determined that former OLs (e.g., Grant Forest Products) will be treated as Domtar contractors for the purpose of compliance monitoring. Accordingly, Domtar assumes full responsibility for compliance planning, monitoring, inspecting and reporting compliance; prevention, education and training of its own workers and those of the former OLs. Accordingly, in the future Domtar will need to develop and implement appropriate third-party audit provisions.

Compliance Reporting

Comparison of AR-12 reports with FOCIS & FOIP data was exceedingly difficult. During the early part of the audit term, FOCIS data was maintained separately by MNR and Domtar. To complicate matters further, MNR inspections were performed by inspectors in three different Districts who maintained their own files on their own computers, making compilation for annual reports difficult. The same was true for industry inspections that were performed by Domtar staff, contractors and Overlapping Licensees. As Domtar moved towards the performance of all inspections by its contractors, re-assignment and turnover of inspectors resulted in many files becoming lost or otherwise irretrievable for comparison with previously submitted AR-12 reports.

With the movement to FOIP in 2004-05, many reports for blocks harvested in the previous fiscal year still had to be entered into FOCIS, resulting in the need to combine FOIP and FOCIS data for the purpose of comparison with submitted AR-12 reports. In addition, FOCIS reports submitted after the end of the fiscal year would not be captured in the original AR-12 reports. Because of these complicating circumstances, it was impossible to definitively compare the results of FOCIS & FOIP with AR-12 reports submitted during the term of the audit.

On a positive note, many of these problems should disappear with the continued use of FOIP and the eventual phase-out of FOCIS. Since FOIP utilizes a centralized on-line database, data retrieval will not suffer from the relocation or reassignment of inspectors. Likewise, problems with the entry of inspections for multiple Districts and industry affiliations will also be solved. Finally, delayed annual reporting of compliance data under the new FMPM (2004) should address problems with inspections being entered after the end of the fiscal year.

In spite of the difficulties encountered in this analysis, some general observations can still be made. Although review of FOCIS and FOIP data suggests that MNR and Domtar have generally satisfied requirements to perform inspections and submit FOCIS/FOIP reports for the full scope of forest operations, timelines to submit completed reports within 10 days as specified in the Guideline for Forest Industry Compliance Planning (2001) were sometimes exceeded.

For example, examination of Inspection Report Listings revealed that approximately 38% of MNR FOCIS reports were submitted late (25 of 65) for the 2003/04 fiscal year. For industry FOIRS for which the submission date could be determined, only 22% were submitted late (19 of 69). However, industry percentages are not conclusive since the dates of submission for the remaining 147 industry FOCIS reports were indeterminate. Nevertheless, MNR and Domtar should be aware of this shortcoming and endeavour to comply with new requirements in the Guideline for Forest Industry Compliance Planning (2005). The audit team believes that as the forest management planning systems of the company and MNR become more aligned with these recent requirements, they will comply with the obligations.

Of greater concern was the accumulated backlog of outstanding "Completed" inspection reports remaining to be completed and entered into both FOCIS and FOIP. At the time of the field audit, more than 50 completed harvest blocks were lacking final inspections. Interviews suggest this resulted from Domtar's delegation of compliance monitoring responsibilities to its contractors in the latter half of the audit term. Although contractors generally performed inspections for blocks started after this delegation of responsibility, they did not assume responsibility for performing inspections on blocks that were already in progress or near completion. Thus there appear to have been no further inspections for many of these blocks. Each such instance could technically be considered a non-compliance, so MNR has been lenient in merely alerting Domtar to this situation.

Domtar has acted to deal with this backlog by training staff to become "certified" inspectors to perform the outstanding inspections. At the time of field audit, some of these individuals had become certified and had actually submitted some of these final inspections. Nevertheless, a recommendation is made to ensure this issue is addressed in a timely manner.

Recommendation # 19

Domtar should perform final inspections on the backlog of harvest blocks that were harvested during the audit period by September 30, 2006 and submit "Completed" inspection reports for each.

With respect to the performance of verification audits, MNR verified many but not all industry-reported non-compliances during the term of the audit. In 2002/03 for example, industry reported 4 access and 5 harvesting non-compliances yet MNR only verified the 4 access non-compliances. In contrast, industry reported 1 access and 3 harvesting non-compliances in 2001-02, yet MNR reported/verified 4 access and 10 harvesting non-compliances. Although the lead District (Sudbury) does perform a higher percentage of the required verification audits, they do not have the authority to direct either Timmins or Chapleau District to do the same. Nevertheless, MNR must ensure that it verifies all industry reported non-compliances in the future.

Recommendation # 20

MNR should verify all industry submitted non-compliant FOIRs in accordance with the Guideline for Forest Industry Compliance Planning (2005).

Silvicultural Monitoring

During the audit period, the Company completed free-to-grow surveys on 33,080 ha, or 81.2% of the forecast area. Since the area harvested during the same period is greater than this by approximately 7,000 ha, the barren and scattered area will increase. In the 2000-2005 FMP, the area of barren and scattered stands was 75,100 ha (FMP-1), and in the 2005-2010 FMP, the area has increased to 95,476 ha, or 10.4% of the Crown managed production forest land base. This increase, combined with the shortfall in free-to-grow assessments for the 2000-2005 FMP term, indicates that a backlog of unsurveyed depleted stands exists. These areas should be identified and scheduled for free-to-grow surveys during the current FMP term (2005-2010). The forecast level of free-to-grow surveys in the 2005-2010 FMP is 29,933 ha, which will be insufficient to address the backlog, given the levels of harvesting and natural depletion in the past two FMP terms (since 1990).

Recommendation # 21

The Company should identify any depleted stands that are ready for free-to-grow assessments and schedule the appropriate surveys within the current FMP term.

Domtar has developed an excellent monitoring program to support their silviculture program and to evaluate effectiveness. Field surveys are conducted at various stages in the management of a stand. These include the following:

- Post-tending surveys to determine application compliance and efficacy
- Pre-tending surveys to conduct stratification of the candidate treatment blocks
- Tree plant supervisors provide tending recommendation to Domtar silviculture program staff; these are usually followed up by an independent field check
- Field surveys of seeding projects to determine efficacy and tending needs; this is followed up in subsequent years if necessary
- Free-to-grow surveys. For clearcut areas, 10% of the total area is measured intensively on the ground; the remainder is assessed visually from the air. Experienced staff at Domtar conduct the visual aerial assessments. Natural regeneration areas receive a higher sampling level on the ground since it is more difficult to assess these areas from the air due to residual trees and larger advance growth. For the same reason, all shelterwood areas are surveyed on the ground.

The Company has developed a set of GIS tools to intersect free-to-grow areas with silvicultural and inventory layers to create database of management history attributes for each site. This includes inventory information, the pre-harvest forest unit, the post-treatment forest unit indicated by the free-to-grow assessment results, the silvicultural prescription, and the treatment intensity level. Essentially this allows the development of summarized rates of success for treatment packages and intensity levels, by pre-harvest forest unit by treatments and by current forest units. Templates have been created by intensity levels for analyses of post-renewal succession and success rates.

This information was used in the development of successional rules for modeling in the 2005-2010 FMP and in the refinement of the Silvicultural Ground Rules. It also helps the Company forecast and control costs and direct treatments to the sites where they will be most effective. As Domtar has a considerable volume of historical information available for the Spanish Forest, the summaries look to be most useful and informative, and will continue to increase in value as information accumulates over time. The audit team believes that this creative example of the analysis of silvicultural monitoring information, and its demonstrated use in plan preparation warrants a best practice.

Best Practice

Domtar is to be commended for the development and implementation of systems for the integration of silvicultural monitoring information into operational planning, and the preparation of the 2005-2010 Forest Management Plan.

3.6.2 Annual Reports

The Company achieved excellent overall performance in the submission of annual reports for operations performed during the term of the audit. An analysis of submission dates revealed that initial annual report submissions were always on time or even early during the entire term of the audit.

MNR review periods for AR Submissions were reasonable in the early part of the audit term (up to April 15, 2002) but became excessively long for the remainder. For example, the review period increased gradually from 34 days for the 2000-2001 fall report to 390 days for the 2003-2004 spring report. Workload, other priorities and technical difficulties were cited as major factors causing the delays. However, MNR should nevertheless improve its performance in reviewing future annual report submissions.

Recommendation # 22

MNR should ensure the timely review of future annual report submissions.

Similarly, but to a lesser degree, Domtar resubmission periods were reasonable in the early part of the audit term but became longer for the remainder. For example, resubmission periods increased gradually from 18 days for the 2000-2001 spring report to 150 days for 2003-2004 spring report. Although documented delays in the latter part of the term were due in great part to delayed FIM portal verification by MNR, information to otherwise confirm resubmission dates was difficult to find.

For example, both Domtar and MNR files lacked email correspondence and/or covering letters that would verify when either party submitted or received AR resubmissions. Overall, submission, review and resubmission dates were poorly documented by both Domtar and MNR. Similarly, Domtar did not kept track of when it received AR-12.2 and T&C #77 report submissions from MNR. As a result, both Domtar and MNR should improve their documentation of AR submission, review and approval dates.

Recommendation # 23

Domtar and MNR should improve their documentation of AR submission, review and approval dates.

Finally, MNR's T&C #77 Reports were provided to the company early or on time for inclusion with fall annual report submissions except for the 2003-2004 fall report for when it was provided almost 9 months late.

With respect to annual report content, Domtar report submissions/resubmissions during the term of the audit substantially met the requirements of the FMPM (1996).

The introduction to the 2003-2004 Spring Report for the Spanish Forest explained that differences in area between text and tables resulted from the re-projection of area from Lambert to NAD 83 UTM. More specifically, areas for silvicultural activities were collected and processed in Lambert projection. Similarly, payments to contractors for completed silvicultural work and subsequent invoicing to the Forest Renewal Trust Fund for the Spanish Forest were also based on this projection. However, for Annual Report purposes, this information was re-projected into NAD 83 UTM to comply with provincial reporting standards. As a result of this, area figures in the text will differ from those indicated in the AR tables and those recorded in the FRTF report.

The text compared AWS scheduled and actual renewal treatment levels and provided explanations for significant differences between planned vs. actual levels of activity. There were slight over-achievements in levels of aerial seeding and slight under achievements in site preparation, tree planting, tending and renewal support, while the area reported for natural regeneration was derived from harvest depletions that occurred during the same year. Slash piling activities were conducted in all mechanically site prepared areas and accounted for as part of the project area, although slash piling was not required in areas harvested with cut-to-length equipment. The text also contained a thorough accounting of funding sources and which contractors performed the work.

Although adequately informative in terms of describing emerging trends and issues, spring AR submissions from previous years were less comprehensive and methodical with respect to providing explanations for differences between AWS scheduled levels of activity and the levels of activity that actually occurred. Positively, earlier reports referenced both the performance of ISO 14001 annual surveillance audits as well as the results of the previous IFA.

Recent Fall Annual Reports were also well written and contained all of the required text, tables, listings and maps required by the FMPM (1996) including the MNR T&C #77 Report for the management unit. The Fall Report for 2003-04 contained a detailed description of the sources of information used to compile the report and the methodologies used to map and digitize harvest depletions. Total harvested area for the year was only 15% of the annual harvest area (AHA) forecast in the FMP, ranging from 0.0% to 21.2% by forest unit. Far more dramatically, 2003-2004 harvest levels for all forest units combined were only 23.2% of that scheduled in the 2003-2004 AWS. This low level of achievement can be attributed to the fact that harvest allocations in this AWS exceeded the average annual rate of forecast depletion as derived from the FMP by more than 300%. This is discussed in more detail in Section 3.3.8

Reported wood utilization by licensee reflects Domtar's dominant role as it harvested more than 96% of the conifer volume and more than 92% of the hardwood volume on the forest. Gervais Forest Products, Grant Forest Products and Craig Tolouse harvested smaller volumes. Compared to planned volumes, some negative numbers are reported in the balance column of Table AR-3 due to some blocks being cut by different operators and wood being delivered from the previous period. Reported wood utilization by mill shows that hardwood volume commitments to Norbord, Midway Lumber, and Pineal Lake were not achieved.

As required by the FMPM (1996), the Annual Report summarized the percent of the AHA harvested by forest unit during the year. However, they neglected to report the percentage of FMP volume harvested by forest unit. Although it is technically impossible to derive this information from MNR TREES data, the percentage of FMP volume harvested by *Working Group* could have been used as an alternate measure to meet this requirement. This, though, is no longer a requirement of the FMPM (2004).

Although the 2003-04 Fall Report contained all of the required text, tables, listings and maps required by the 1996 FMPM, it failed to satisfy phase-in provisions of the 2004 FMPM requiring that "the annual report for 2003-04 will be prepared in accordance with the requirements of the *Forest Management Planning Manual for Ontario's Crown Forests*, dated September 1996, with the addition of the AR-3 and text requirements relating to planned clearcuts, as described in Part E, Section 2.3.1 of this *Forest Management Planning Manual*". Though the partially completed Table AR-3 did include a list of planned clearcut areas by location, the table remained incomplete without planned and actual clearcut harvest areas for either the term or current year. However, this shortcoming has been addressed with production of the 2004-05 Annual Report so no action is necessary

With respect to annual reports produced earlier in the audit term, they also met the requirements of the 1996 FMPM except that previous fall submissions were much less comprehensive and methodical with respect to describing emerging trends and issues and providing explanations for differences between AWS scheduled levels of activity and the levels of activity that actually occurred. Conclusions were also exceptionally brief.

More generally, on December 1, 2004, MNR issued direction to waive the District requirement to review all annual report submissions. Instead, MNR will review the more comprehensive ARs that are produced at the end of years 3, 7, and 10 in the plan period, while review of ARs produced in other years is at the discretion of the District. A recent MNR document[12] providing direction on annual reports and MNR"s review obligations notes that " workload priority issues may impact on the level of AR review that MNR can undertake", and so identifies some voluntary measures which districts may wish to use in reviewing annual reports (other than the year 3, 7 and 10 Ars). They include: ensuring that all required components have been submitted, reviewing the synopsis of the report, and conducting spot-checks of data in required tables. We do not believe that these, nor the similar measures identified in the MNR document will provide any meaningful quality control to the annual reports.

Each year, for due diligence, MNR will only review in detail a sample of "regular" Annual Report submissions (a minimum of two from the Northeast Region, two from the Northwest Region and one from the Southern Region). Other reports are to be accepted as submitted and the onus is to be placed on the AR author and the RPF who stamps the reports to ensure that the content is correct. As noted above, MNR districts are not required to review the reports.

As noted in the MNR document, the intent of this change in direction is to free up MNR staff time. The Audit Team has, in previous audits, found that sometimes the MNR staff do the work of the Company in correcting the very rough draft AR's that are submitted. However, the Audit Team feels that there are other solutions available to remedy this problem, such as conducting an initial check and sending the AR back to the Company without detailed review if it is of poor quality. In most cases, the mistakes that are made in the AR's are honest mistakes that are made in the course of compiling a complex report, and it is unreasonable to expect that the reports will be error-free. We note that the audit reports go through two draft stages before the final reports are produced – this is an accepted and normal mechanism for quality control in all professions.

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[12] Ontario Ministry of Natural Resources. Annual Report Preparation and Review Protocol - Fall 2005

The Audit Team feels that, while the direction may be consistent with new FMPM (2004) minimum requirements, it will inevitably lead to cascading errors that will become evident when the major AR reports are submitted (comprehensive AR's are required at 3 and 7 years into the plan period and MNR District staff are required to review these) and will be all the more time-consuming and difficult to correct when they are finally caught. The end result may not be a time-saving and in the meantime, the risk of erroneous public documents being available will rise.

Recommendation # 24

The audit team strongly recommends that Corporate MNR revise the 2004 FMPM to require MNR review of all annual reports and consider alternate ways to handle relevant workload issues.

3.6.3 Report of Past Forest Operations

The RPFO created for the 2005 FMP covered the term April 1, 1996 – March 31, 2000. This is because the previous RPFO covered the April 1, 1990 to March 31, 1996 period, which was extended from five to six years because the previous plan period was extended by a year after a prolonged labour strike halted operations on the forest. The FMP that came into force on April 1, 1996 was to be for four years. However, a judicial review of FMPs ruled that the 1996 FMPs were invalid for a failure to completely comply with the CFSA and the FMPM. This led to the creation of a contingency plan for the Upper Spanish Forest for the year 1999-2000.

The RPFO documents for the Spanish Forest are complex because the author needed to account for the merger of the former Upper and Lower Spanish Forests, a shortened plan period (1996-2000), and contingency plans in the 1999 – 2000 fiscal year.

Although the RPFO was tied into the development of the Spanish Forest FMP, two RPFO documents were created, one for the former Upper Spanish and the second for the former Lower Spanish Forest. However, the text portion of the RPFOs covers both the Upper and Lower Spanish Forests, and the two documents are almost identical. An RPFO was also prepared for the 1999-2000 contingency plan period on the Upper Spanish Forest.

The reports are very confusing, since they contain a mixture of data and information apparently from the 1990-1996 period as well as the 1996-2000 period. The four and six-year plan periods also created challenges for the RPFO author because the FMPM assumes planning periods will be five years and directs the author to report on 5, 10 and 15 year terms. The title page of one of the reports is an indicator of the confusion to come, since it reads: "Report of Past Forest Operations for the Spanish Forest for the six-year period from April 1, 1996 to March 31, 2000".

However, inside the report, the text states that the report has been prepared for the April 1, 1990 to March 31, 1996 period, discusses aspects of the 1990 FMP, including issues that arose during its preparation, and summarizes forest inspections reports for the 1990-96 period.

A summary of the audit's assessment of the RPFO is provided in Table 7.

Table 7. Summary of the 1996-2000 RPFO produced to provide reference for the 2005 FMP.

RPFO Element	Audit Assessment
Submission of Preliminary RPFO	The draft RPFO for the 2005 plan was due within two years of the expiry of the past forest management plan (i.e. by March 31 2002). The draft RPFO was submitted on schedule but delays caused by a strike by the Ontario Public Service Employees Union delayed review. Review of the draft was completed by June 10, 2002, and the final version submitted July 3, 2002
Analysis of planned vs. actual results	The RPFO contains a series of tables comparing planned and actual levels of activities during the 1996 – 2000 period, and explains some of the differentials.
Achievement of Management Objectives	The achievement of the forest management objectives in the 1990 FMPs was assessed, and found to have been successful. There is no assessment of the achievement of the goals and objectives in the 1996 FMP.
Description of Trends and Issues	Few trends are described in any detail. The amount of by-pass was identified by MNR as a major issue, and while the Company did declare a large area to be by-pass, this was not considered to be a major issue by the audit team.
Comparison of forest condition at start and end of the plan.	Not addressed.
Explanations and Conclusions	A review of assumptions was not conducted on the basis that assumptions were not documented in earlier plans. The RPFO concludes that plan objectives were essentially met, but this is mainly based on the actual versus planed harvest levels. A comprehensive conclusion on sustainability is not presented, due lack of suitable indicator data in previous plans.
Summary Document	Completed.
List of Amendments and explanations for their frequency	Amendments to the 1996 FMPs are listed and summarized.
Assessment of Sustainability	The lack of available information from the RFPO term and previous terms made it difficult for authors to draw conclusions regarding sustainability.
Summary of Independent Forest Audit Results	A discussion of the two recommendations from the 1995 IFA is Included in RPFO.
Incorporation of Conclusions and IFA Results into present FMP	The 1995 IFA essentially found that the Company was doing an excellent job in all areas – there were no recommendations requiring corrective action.

Although it would seem improbable that such a document could have passed review, correspondence indicates that the MNR review was completed at or approximately June 10, 2002 and the company submitted revised the RPFOs under cover dated July 3, 2002.

The versions of the RPFOs reviewed by the Audit Team are of little value since the report mixes timeframes throughout. Because there will be no more RPFO's prepared for the Spanish Forest from henceforth, as per the 2004 FMPM, there appears to be little value in requiring the Company to revise the RPFOs. Additionally, the Trend Analysis included as Appendix A in this report provides information for the same period as the RPFO.

3.7 ACHIEVEMENT OF MANAGEMENT OBJECTIVES AND FOREST SUSTAINABILITY

The IFAPP directs the Audit Team to assess the sustainability of forest management using a methodology described in the IFAPP. The IFAPP states that "Compliance with the applicable criteria [of the IFAPP] will determine whether the forest unit complies with the general principle of forest sustainability". The field observations of the Audit Team are also to be considered in assessing sustainability. Section 3.7.1 assesses the extent to which the management objectives of the 2000 FMP were met. Sections 3.7.2 and 3.7.3 review the information in the Comparison and Trend Analysis and RPFO, while section 3.7.4 presents our conclusions regarding sustainability.

3.7.1 Achievement of Management Objectives

The IFAPP requires that the assessment of achievement of management objectives draw upon the most recent completed RPFO. As described in Section 3.6.3, the most recent complete RPFO covers the term 1996-2000, and concluded that management objectives in the 1996 FMPs were essentially met. Since the RPFO was produced partway through the 2000 FMP period, the author was unable to draw any conclusions regarding the achievement of objectives in the 2000 FMP.

Table 8 reviews the achievement of management objectives for the 2000 FMP. To summarize, the achievements of the FMP period included:

- Many objectives were quantitative making their attainment readily assessable.
- The biological diversity objectives are projected to be attained. Most landscape level objectives are long-term, and so their attainment is contingent upon the company's long-term implementation of the strategies identified in the FMP.
- The social importance of the Spanish Forest is evident in through the extensive non-timber use of the forest. The company generally has good relations with non-timber users.
- The harvest levels for conifers and poplar were attained, although the harvests for birch and white pine were below target, there are reasonable explanations for these deviations.
- The objectives for values dependent upon forest cover are projected to be attained, however the audit team has concerns about the decline in projected availability of wildlife habitat for many indicator species.
- The company's silvicultural achievements were consistent with the objectives.

Table 8. The Audit Team's Assessment of the Achievement of Goals and Objectives of the 2000 FMP.

Goals/ Objectives	Achievements	Explanation
	Biological Diversity	
Landscape Level Goal: Approach / maintain the diversity of forest types which would be expected to occur naturally in the Spanish Forest. **Objectives:** 1. Increase the area of the jack pine forest unit to 225,000 hectares within 100 years. 2. Increase the area of the white and red pine forest units to approximately 125% of the area in 2000 (target area 67,000 hectares) within 100 years. 3. Maintain and enhance the composition of white pine within other forest units (other implies all except the white/red pine seedtree and white/red pine shelterwood forest units). 4. Maintain the area of all other forest units within +/- 20% of the range (that occurs in the first 100 years) determined through the examination of the natural forest condition. 5. Provide for a distribution of disturbances that more closely resembles the expected natural disturbance frequency by size class. 6. Produce an age class distribution in which the majority of the forest is contained in stands below the theoretical fire cycle age, and distributed fairly equally by age class among those age classes below that age. 7. Produce and maintain a minimum of 10% of each forest type in age classes that demonstrate old forest characteristics (25% for the white / red pine forest type). 8. Maintain as a minimum, the amount of overmature seral stage within each forest type	**Landscape Level Objectives** During the audit period the Company planted 16.7 million jack pine, 1.5 million white pine, and 0.8 million red pine; and seeded 7,722 ha with jack pine. All seeds and seedlings originated from the appropriate seed zones. 71% of the total tending effort was directed at the Pj Pure, and Red and White Pine forest units to ensure the survival and maintenance of the pine species. 1. Table FMP-3 of 2000 FMP (based on SFMM modeling shows 225,754 ha of PJPUR forest unit are projected for the forest by 2060; Table FMP-3 of 2005 FMP shows > 250,000 ha of PJ1 and PJ2 forest units are projected for the forest by 2105 2. Table FMP-12 of the 2000 FMP shows the area of white and red pine forest units as 66,695 in 2080 and 65,396 ha in 2100 3. The silvicultural ground rules indicate that whenever present, white pine seedtrees will be maintained every 20 m in non white-pine forest units. Field inspection verified this practice. 4. Table FMP-12 shows this objective is achieved for all forest units. 5. 2000 and 2005 FMPs contain strategies to attain natural clearcut size distributions; Figure FMP A-3 verifies this; Maps 8.0 and 8.1 of 2005 FMP show stands selected for harvest, which also provide verification; field examination also confirmed this.	Most of the landscape objectives incorporate long-term targets. The Landscape Level objectives are projected to be achieved by the modelling undertaken in the development of the plan. Stand and Genetic objectives are attained.

Goals/ Objectives	Achievements	Explanation
as expected in the natural forest condition. **Stand Level Objective:** - Provide for vertical and horizontal stand structure within harvest disturbance areas. **Genetic Level Objective:** - Maintain the existing diversity of trees used in regeneration programs.	6. Table FMP-11 shows this objective is projected to be obtained within reasonable bounds for the DFFC (2060). There is some variation around the desired age-class distributions, but not an excessive amount. 7. Table FMP-12 shows this objective is projected to be attained (exceeded actually) for all Forest Units for the DFFC. 8. Table FMP-12 shows this objective is projected to be attained for all forest units. **Stand Level Objective** - Field inspection showed attainment of targets (min 6-10 snags/ha) for first years of audit period, and approx. 25/ha in latter years for vertical structure. Horizontal structure is provided in the normal course of conducting harvest operations **Genetic Level Objective** - All seed used in renewal originated from within the Spanish Forest or approved proximal seed zones.	
Social and Economic		
Goal: To provide for a diverse range of land use activities on the Spanish Forest. **Objectives:** - To provide for the maintenance or enhancement of existing land use activities on the forest through the protection from or mitigation of the impact of forest operations.	The Spanish Forest is used intensively for recreation by regional residents, as well as people from throughout Canada and abroad. Fishing, hunting, cottaging, snowmobiling, berry-picking and canoeing are some of the more popular recreational uses; there are 19 canoe routes in the Forest.	The Company had generally good relations with the cottagers, tourism operators and outfitters, dealing with many of their concerns through access restrictions and AOCs. Management guidelines provide for other values associated with recreational use.
Goal: Maintain the economic benefits associated with the quantity of timber supplied to wood-	The average SPF harvest during the audit period and the 2000 plan period was 709,000 m3/yr, which	The management of changes in harvest volume and area was

Goals/ Objectives	Achievements	Explanation
processing facilities. **Objectives**: • Meet or exceed the volumes and products of timber required by wood processing facilities (as indicated in Ministry commitments, Mill MROL's, historic supply): ○ 815,200 m3/yr SPF ○ 212,400 m3/yr of aspen ○ 107,600 m3/yr of white birch ○ 50,000 m3/yr of white pine • Manage decreases in wood supply level to a level at which industry can adapt (10 to 20 percent per 10-year term dependant upon species grouping). • Manage changes in total area harvested by forest unit to a level at which industry can adapt. • Minimize the area burned due to human caused forest fires.	was below the MROL. The white pine harvest averaged 12,300 m3/yr, well below target. The white pine market was poor during the audit term – one of the main users, Pineal Lake, used very little white pine and has gone out of business. The aspen harvest at 205,000 m3/yr was close to the MROL while birch was well below target at 2,250 m3/yr.	accomplished through the constraints applied when SFMM was run. The changes from period to period are generally within the bounds specified in the 2000 FMP. Company ad MNR made strenuous efforts to suppress wildfires.
Goal: Public support and confidence for forest management activities. **Objective**: • Increase and maintain broad public support and confidence for forest management activities on the Spanish Forest.	Preparation of the 2005 FMP for the Spanish Forest proceeded on schedule, without major conflicts arising with the public. Multiple public interest groups (First Nations, remote tourism operators, recreation users, fishers, hunters, public harvesters of non-timber forest products, *etc.*) continue to benefit from the Spanish Forest.	Consultation has resulted in the incorporation and protection values of importance to the public on the Spanish Forest. RSAs, the Spanish River Signature Site which includes Enhanced Management Areas, and respect for historic land uses by LUP holders and First Nations provides multiple benefits from the Spanish Forest.

Goals/ Objectives	Achievements	Explanation
Values Dependent on Forest Cover		
Goal: Maintain habitat for a wide range of representative wildlife species. **Objectives**: 1. Maintain the area of wildlife habitat units within +/- 20% of the range (that occurs in the first 100 years) determined through the examination of the natural forest condition. 2. Maintain preferred habitat for both pine marten and pileated woodpeckers within the range of +/- 20%, by ten-year term, of that which would be expected in the natural forest condition. 3. For the five-year term, maintain a minimum of 20% of the forest which is capable of producing marten, in suitable habitat conditions arranged in core habitat areas. 4. Plan for the provision of core pine marten habitat into the future. 5. Protect the habitat of rare, threatened, endangered and locally featured species as well as provincially and locally featured species.	1. Table FMP-12 shows that this objective is projected to be attained 2. Table FMP-12 and SFMM output verify that this objective is projected to be attained. 3. For the five year term the minimum target is approx. 203,000 ha; for the five-year term 24 core areas are identified in which table FMP-12 shows the attained level is projected to be approx. 208,000 ha. 4. The marten guidelines have been followed in the development of the FMP; maps indicating the location of core marten habitat to the year 2040 have been produced as part of the 2000 FMP. 5. The FMP maintains that this objective is met through following the suite of MNR guides	The company has planned well and carefully to meet the objectives set out in the FMP. However, the audit team has concerns about the marked decrease in projected availability of wildlife habitat for the indicator species included in Table FMP-5 for both the 2000 and 2005 FMPs. The audit team notes that the levels of wildlife habitat projected to be attained are within the acceptable limits as defined by the MNR. However, the audit team has concerns that the limits identified by the MNR are too broad. This is addressed in Recommendation # 5.
Goal: Maintenance of water quality and fish habitat on the Spanish Forest. **Objective**: • Maintain and protect water quality and fish habitat from the detrimental effects of forest management operations.	The FMP maintains that adherence to the fish habitat guidelines will ensure that this objective is attained. The audit team concurs.	The audit team saw nothing systemic in the field to suggest that the guidelines were not being adhered to. The only possible impacts to water quality were issues related to bridge maintenance. These have been addressed in Recommendation # 14.

Goals/ Objectives	Achievements	Explanation
Silviculture		
Goal: To maintain sustainable, healthy and biologically diverse ecosystems. ***Objectives**:* 1. To ensure that forests which result from forest management activities, are healthy, biologically diverse, and produce a sustainable and economically attainable supply of raw materials for the forest products industry. 2. Maintain current wood supply levels without increasing and possibly decreasing the rates payable to the forest renewal trust fund. 3. Minimize negative impacts on long-term forest health and productivity due to forest operations.	1. During the audit period the Company implemented 115% of the forecast artificial renewal program, 99.5% of the forecast tending program, and reported 49% of the forecast natural regeneration area. The tending conducted during the audit period was appropriate for the site conditions and to meet the silvicultural objectives for the treated areas. 2. Renewal rates were reviewed annually by the Company and MNR; two changes to the conifer rates have been implemented but the overall rate has not increased. Hardwood rates did not change during the audit period. 3. Site damage due to forestry operations was minimal on the sites we assessed in the field and viewed from the air. The Company has done a good job of minimizing unnecessary soil disturbance resulting from harvesting and site preparation operations.	The proportions of tree species that were planted and seeded were very close to planned levels and the projected future forest units on these sites is consequently in accordance with plan forecasts.

3.7.2 Review of the Trend Analysis of Planned vs. Actual Forest Operations

The IFAPP requires that this assessment of sustainability review the Trend Analysis, which is included as Appendix A of this report. The Trend Analysis is prepared by the forest manager and is intended to identify signficant trends in the management of the Forest. The Trend Analysis for this audit was prepared in accordance with the requirements of the IFAPP.

Forest Area and Composition

Table 1 of the Trend Analysis shows some changes in the nature of the forest over time. Two notable changes are the decline in total forested land from 1990-1996 to 2000-2005, and a decline in the amount of Protection Forest. Total forest area declined from approximately 1.143 million ha to 1.069 million ha, a decrease of approximately 74,000 ha. This decrease is attributable mostly to the creation of new parks and conservation reserves through the Living Legacy process. The area of protection forest declined by approximately 53,000 ha from approximately 65,000 ha to 12,000 ha. The decline is attributable to the use of a more refined methodology for determining the extent of protection forest which came into use in the 1996-2000 plan period. Another important change is the trend in B&S/NSR lands and depleted forest. The total area encompassed by these categories rose from 99,000 ha in 1990-1996 to approximately 131,000 ha in 1996-2000, and then fell to approximately 77,000 ha in 2000-2005. The recent decline is a result of silvicultural assessments allowing previously NSR area to be transferred to young forest stands.

Changes in the area of working groups are difficult to interpret given the changes described above. For example, much of the parkland created on the forest captured red and white pine areas, but the area of these working groups has increased since 1990-1996; likely the result of improved classification of protection forest, and previously depleted areas coming back to young forest. In general, however there have not been significant shifts in the relative abundance of the Forest's working groups since the 1996-2000 period.

Harvest

Table 3 of the Trend Analysis presents a summary of planned vs. actual harvest volumes. Data for the 2000 – 2005 period are not presented as the RPFO for that period had not been prepared.

For the period 1990-1996, the actual harvest was about 90% of the anticipated annual volume of 948,460 m^3/yr. The difference in planned vs. actual is largely attributed to bypass of spruce working group forests, and less-than-planned demand for poplar. In the 1996-2000 period, only 65% of the anticipated volume of 851,713 m3/yr was harvested. The differences are attributed mostly to a half-year-long labour dispute, and the continuing poor demand for poplar. The poor demand (and therefore underharvest) for poplar is the most striking trend apparent from Table 3 of the Trend Analysis. The document notes that there are continued developing commitments for poplar on the forest, and that utilization is expected to improve as it becomes more of an industrially desirable species. As noted in section 3.4.2 this is in fact, occurring. The underharvest of spruce in all reported plan periods is also striking and this is likely because of the fact that the company is in the midst of a transition from harvesting the large area of old mature jack pine to focusing on the harvest area of spruce-dominated stands. As noted earlier, the jack pine stands deteriorate sooner than old spruce stands, and a decision was made to focus on capturing the old jack pine before it declined and then, once the largest portion of those stands had been harvested, to shift to mature spruce stands.

Similar to the volume underharvest, the actual harvest area has been consistently less than the planned area. For the period 1990-96, 76% of the planned area was harvested, and for the period 1996-2000, only 57% of the planned area was harvested. In both periods, every major forest unit was underharvested compared to planned levels. Furthermore, the extent of the areal underharvest was greater than that of the volume underharvest. The Trend Analysis attributes the proportionately greater areal underharvest for the conifer forest units to low average volumes in bypassed SPF areas and "slightly aggressive FRI volumes". For the hardwood forest units the greater proportionate areal underharvest is attributed to the fact that some hardwood volume was obtained from areas harvested primarily for conifers.

Table 4 of the Trend Analysis also shows that the planned harvest area for the 2000 FMP increased by approximately 1,500 ha/year compared to the 1996-2000 FMP. The Trend Analysis notes that this partly reflects some advantages of the amalgamation (i.e. some offsetting differences of the age class distributions of the Upper and Lower Spanish Forests).

Silviculture

Table 6 of the Trend Analysis provides a summary of renewal, tending and protection operations. For most activities the level of achieved operations compares favourably with the planned levels. For the 1990-1996 period the achieved levels of natural regeneration, artificial regeneration, site preparation, and tending were 90%, 84%, 77% and 140% of planned respectively. Although sivilculture operations are not done on the schedule as harvesting operations (i.e. an area harvested in one year will not necessarily be treated silviculturally in the same year), the comparison of planned to achieved harvest areas provide some basis for comparison. As noted above, the achieved harvest area for the 1990-1996 period was 76% of that planned.

The Trend Analysis notes that the planting and seeding levels of the 1990-1996 periods were close to planned, however we note that the actual seeding levels were only 73% of those planned. This is primarily because of the underharvest of jack pine sites (78% of planned). The greater-than-planned level of tending activity in the 1990-1996 period is due to an overachievement of aerial chemical application.

For the 1996-2000 plan period, the achieved levels of natural regeneration, artificial regeneration, site preparation, and tending were 101%, 104%, 94% and 99% of planned respectively.

3.7.3 Review of RPFO Assessment of Sustainability

As was indicated in the description of the RPFOs above (Section 3.6.3), the RPFOs contain a mixture if text and data pertaining to two periods, and so the information within them is difficult to decipher.

The RPFO's did discuss sustainability on the Spanish Forest, however the authors concluded that it was not possible to use the set of sustainability indicators specified by the 1996 FMPM, since many of them were not tracked or assessed as part of developing the 1996 FMPs. A new inventory prepared in the early 1990's complicated the application of the forest area-based indicators by creating artificial differences between the forest inventory information presented in the 1990 and 1996 FMPs. As a result, the RPFOs do not draw any conclusions regarding the sustainability of forest management.

3.7.4 Conclusions Regarding Sustainability

The Audit Team's conclusions regarding sustainability have attempted to take several factors into account. Portions of the reviews in Sections 3.7.1 – 3.7.3 contribute to the assessment, but not all aspects of these sections are equally relevant. Three factors somewhat complicate the assessment:

- Changes in forest area and forest unit composition have come about as a result of the creation of new protected areas. While in itself the creation of protected areas are seen as a positive contribution to the ecological health of the area, these changes have masked to the extent to which forest management activities may have led to changes in forest units. Nonetheless, the areal changes associated with protected areas are relatively small compared to the total area of the Spanish Forest, so we conclude that the complication introduced by this is not a major impediment in the assessment of sustainability.
- Unplanned work stoppages associated with labour issues disrupted forest management activities on the forest. While the work stoppages affected harvest areas and, to a lesser extent silvicultural operations, again we conclude that the complications introduced by these events are not a major impediment in the assessment of sustainability.
- The RPFO prepared in concert with the 2005 plan is not a useful document as it appears to mix timeframes throughout. Fortunately the Trend Analyses presents the data in a more useful manner.

In addition to the information presented in the above sections, the Audit Team draws heavily upon the following to base its conclusions regarding sustainability:

- Adherence to the required forest management guides and manuals;
- The existence of an excellent silvicultural and silvicultural monitoring program;
- The harvest and regeneration are in balance and there is no overharvesting on the Forest, judging from available data and the observations made during our site inspection;
- The fulfillment of the goals and objectives of the 2000 FMP – this is aided by the fact that many objectives were numerical and so their achievement could be gauged quantitatively;
- Adherence to the conditions of the SFL;
- The existence of a functional LCC;
- The high level of personal dedication and professionalism of company and Sudbury District MNR staff;
- The Audit Team's general good impression of management of the forest.

In addition to the review of the information in Sections 3.7.1-3.7.3, the Audit Team has also interviewed many people associated with the Forest, spent two days viewing the results of operations in the Forest, and gained a great deal of insight into the management issues on the Forest and the performance of Company and Ministry staff.

Based on the above considerations and the material presented throughout this report, we conclude that the forest is being managed within the bounds of sustainability as defined by the MNR and as outlined in the IFAPP.

Notwithstanding the above positive assessment of the forests' management, the audit team has strong concerns regarding the provision of wildlife habitat on the Forest. Although the company has followed the guidance laid down by the MNR as to acceptable levels of wildlife habitat, we feel the bounds of the guidance identified by the MNR are too broad and have recommended that they be revisited by Corporate MNR.

3.8 CONTRACTUAL OBLIGATIONS

3.8.1 Payments of Crown Timber Charges

According to records from the MNR TREES system, as of October 17, 2005, all Company payments for Crown dues and renewal payments were up to date, with the exception of Gervais Forest Products, a contractor. Associated with licence 550746, Gervais owed the Ontario Government $1,051.20 in stumpage dues and owed Royal Trust, the renewal account manager, $973.88. Gervais also owed Royal Trust $131.35 related to licence 550895, for a total owing of 2156.43.

3.8.2 Forest Renewal Trust

The required minimum balances were in place for the Spanish Forest at March 31, 2001 through March 31, 2005. We reviewed company records for items invoiced to the Forest Renewal Trust for the years 2000 through 2005 for the Spanish Forest. All invoices for this period were examined and, with one minor exception, all expenses were found to be eligible and appropriate as per the requirements of the Trust Agreement. The Company maintains good records of the silvicultural expenses and maps of the treatment projects as required by the licence.

Reviews of the renewal rates were conducted by the Company and MNR as required by the licence. Rate reviews were conducted annually, and appropriate changes to the conifer rates were recommended and implemented in 2002 and 2003. No issues were identified by the KPMG auditors in the Specified Procedures Report for the year 2003/04.

3.8.3 Forestry Futures Trust

During the audit period, two projects, both of which were for pre-commercial thinning, were funded through the Forestry Futures Trust. We verified both these projects in the field and the implementation was of good quality. Financial matters related to the Forestry Futures Trust for the Spanish Forest were in good order and the Company maintains good records and maps of the projects. All required reports had been submitted by the Company to the Forestry Futures Trust as required, and these were of good quality.

3.8.4 Wood Supply Commitments

There were four wood supply commitments in place during the audit period to other companies, as listed in Appendix E of the Sustainable Forest Licence. The 2000 FMP also describes three other hardwood fibre commitments to the Espanola mill that are not listed in Appendix E of the SFL but which, according to the FMP, are in force. These commitments are not shown in Table 9 below:

Table 9. Wood Supply Commitments on the Spanish Forest and Extent of Achievement during the first four years of the Audit Period.

Commitment Holder	Product Type	Commitment Volume (m^3/yr)	Average Annual Actual Shipments (m^3/yr)	Excess (Shortfall) (m^3/yr)
Norbord	Aspen veneer	31,000*	20,250	(10,750)
Grant Forest Products	Non-veneer aspen	132,420	172,160	40,260
Midway Lumber	Red/white pine sawlogs	7,000	1,852	(5,148)
Pineal Lake	Red/white pine sawlogs	6,000	187	(5,813)

* The SFL states that the volume is to come from the former Upper Spanish Forest.

Table 9 also indicates the amount of specified volume from the Spanish Forest that was utilized by each commitment holder, although these figures are based primarily on data from the Annual Reports, which were only available for the first four years of the audit period at the time of writing (the 2004-05 AR is not due until November 15, 2005).

In the case of Norbord, there is an agreement with Domtar for volume to be supplied from both the Pineland and Spanish Forest, and so deliveries from the Spanish Forest alone do not provide a good indication of the extent to which the inter-company agreement was met. However, the SFL condition is also legally binding, and the results show that an average of 18,700 m^3/yr was reported as being delivered during the first four years of the audit period, with the high point of 29,400 m^3 being reached in year 2000-01 and the low point of 11,100 m^3 in 2002-03. Domtar records indicated that 26,450 m^3 had been delivered in the first six months of 2004-05 (the actual delivery figure shown in Table 9 is based on an average of the AR data and Company data for 2004-05) and the Audit Team saw considerable volumes of harvested poplar in the bush that had been harvested in the previous year, and which probably contain additional veneer. In discussions with staff from both companies, there was a reasonable degree of satisfaction with the way the commitment had been met. Norbord staff observed that they didn't feel that meeting the commitment was a particularly high priority for Domtar, while Domtar staff indicated that they had worked with contractors during the audit period to encourage them to cut veneer (there was resistance to this because production rates are lower, even though its higher price compensates somewhat for this), and this was improving their ability to supply veneer to Norbord. The major concern of Norbord was that there were additional opportunities for harvesting and merchandizing poplar veneer that were being missed (see discussion in Section 3.4.2).

In contrast, shipments of poplar to Grant were in excess of the commitment, averaging 172,160 m^3/year. Shipments were below the commitment level in one year, 2001-02, but well in excess in 2000-01 and 2003-04 and 2004-05.

Midway Lumber indicated that during the first years of the audit term, it had sufficient supplies close to its mill and did not wish to obtain any wood from the Spanish Forest, and no volume went to Midway Lumber until 2002-03. Sizable shipments of 4,300 m^3 and 4,500 m^3 were sent from the Spanish Forest in 2003-04 and 2004-05, respectively. . During the audit term, Domtar offered wood to Midway under an arrangement whereby Domtar's contractors would harvest wood for Midway in response to its requests. Since Midway lacked control over Domtar's contractors, this arrangement was not satisfactory. In the 2005 FMP period, Midway has been issued a five-year overlapping licence which has improved Midway's ability to obtain wood as it requires from the Spanish Forest.

Very little timber went to Pineal Lake Lumber. Pineal Lake received several hundred cubic metres in 2000-01 and in 2004-05, but has recently gone out of business.

3.8.5 Specified Procedures Field Assessment

We conducted field assessments on 2,743 ha, or 21.4% of all silvicultural treatments that were invoiced to the Forest Renewal Trust for the year 2003-2004, including areas assessed for free-to-grow status. In all cases the treatments were in place as mapped in the annual reports, were appropriate for the site conditions, and had been implemented to a good standard of quality. Free-to-grow assessment results for the year 2003/04 provided by the Company conformed well with our observations on these sites and the free-to-grow status of these sites was confirmed.

The Specified Procedures report for the Spanish Forest, prepared by KPMG, identified several vague items in Company documentation. All of these items were checked and were verified to be appropriate and eligible expenses. The KPMG report identified only a single monetary error related to the Forest Renewal Trust invoices. This was related to a site preparation contract. During GIS mapping of the project, it was discovered that a small part of the block (30.7 ha) for which the contractor had been paid had not been treated. The entire area was submitted for reimbursement to the Forest Renewal Trust. Since the error was identified prior to submission of the annual report for that year, there is no corresponding error in the annual reporting of site preparation area, and the area will be identified as available for future treatment if necessary. However, the error has not yet been rectified with the Forest Renewal Trust account.

Recommendation # 25

The 30.7 ha site preparation error for the 2003/04 fiscal year should be reconciled with the Forest Renewal Trust account for the Spanish Forest.

3.8.6 *Inventory and Monitoring Obligations*

There were no X, Y and Z lands identified in the licence document, and no pest control treatments were conducted during the audit period. During the audit period, free-to-grow surveys were conducted on an area totaling 33,080 ha. The Company has implemented a good silvicultural effectiveness monitoring program which will identify areas requiring further treatments prior to the free-to-grow stage.

3.8.7 *First Nations Participation*

Section 20 of the Spanish Forest SFL states: "*The Company shall work co-operatively with the Minister and local Aboriginal communities in order to identify and implement ways of achieving a more equal participation by Aboriginal communities in the benefits provided through forest management planning.*" This statement interpreted in its broadest sense would include benefits such as the protection of traditional First Nation social, cultural and ecological values within the Spanish Forest, as well as the provision of opportunities leading to economic benefits through involvement of First Nations in forest management activities on the Spanish Forest.

Terms and Condition 77 (T&C 77 of the Class EA) reports provided by the MNR for the Sudbury District over the audit period do not cover all areas of the Spanish Forest and as such may not provide all relevant information. As well T&C 77 reports are "District Based" and include therefore information that may be unrelated to the Spanish Forest. Consequently, the license holder, Domtar and the MNR do not provide a comprehensive evaluation of efforts made in relation to Section 20 of the SFL.

Interviews conducted during the audit with MNR and Domtar staff determined that a variety of important efforts have been made and many of these have been successful in working cooperatively with First Nations in forest management planning. Some of these efforts include the provision of funding by Domtar (e.g. funding to Mattagami First Nation for improving collection and storage of Native values information) or funding by MNR (e.g. funding of values mapping for Sagamok First Nation, Mattagami First Nation and Wikwemikong First Nation). Other examples of cooperation include, overlapping licences, support of training initiatives, and the use of First Nation companies or individuals in harvesting and silviculture operations. Domtar has also provided benefits to First Nations that are not directly related to the Spanish Forest, such as provision of surplus computers to a First Nation school or the repair of roads adjacent to the Spanish Forest in the Brunswick House Mountbatten Reserve.

In order to address Section 20 of the SFL there is a need for a more careful approach to efforts aimed at working co-operatively with local First Nation communities. This would include more thorough documentation of what has been done in the past, what is currently being done and what is planned for the future. In this way successful efforts may identified and built upon to provide continued benefits to First Nations through participation in forest management.

Recommendation # 26

Domtar and MNR should track and report on efforts made to work cooperatively with First Nations on the Spanish Forest per Section 20 of the SFL.

Interviews with First Nations and Domtar have identified a difficulty in regard to First Nations companies participating in harvesting operations due to the requirements of membership in the local union (previously IWA – Industrial, Wood and Allied Workers, now part of the United Steelworkers of Canada). Domtar, First Nations and the Union continue to attempt to negotiate terms that will allow First Nations to participate in forest management that is acceptable to all parties. The audit team hopes to reinforce these efforts in Suggestion # 12.

Suggestion # 12

Domtar, MNR and First Nations should continue to seek means to allow meaningful participation of First Nations in SFM while at the same time addressing the concerns of local forestry worker unions.

3.8.8 Previous Independent Forest Audit

The previous audit for the Spanish Forest was conducted in 2000, with the final report tabled in February of 2001[13]. During the period covered by the previous audit (1995-2000) the present Spanish Forest was managed as its two predecessor units – the Upper Spanish and the Lower Spanish, however the audit report considered them together and the recommendations tabled in the audit report were intended to apply to both forests equally. The action plan for addressing the audit's recommendations was due in April of 2001, two months after the report was submitted. The action plan was approved in the autumn of 2001, several months late. The status report on implementation of the action plan was due in the autumn of 2003, two years after approval of the action plan. Apparently the status report was prepared on schedule, but never found its way through the approval process. We anticipate that the measures developed in response to the document management recommendations in this audit will help ensure that this situation does not occur again.

The MNR provided the audit team with a copy of the status report updated to July 2005, but based on the initial 2003 document. Table 10 summarizes the present status of efforts directed at implementing the recommendations of the previous audit.

Table 10. Review of the implementation of recommendations made in the previous Independent Forest Audit.

Recommendation	Actions Taken	Status
1. The planning team should initiate an evaluation of AOC's to determine appropriate reserve zone widths and activities permitted within the AOC modified zone, while maintaining protection for featured species and	Corporate MNR facilitated an overall review of the guides (1999/2000), which also made the point that effectiveness monitoring was lacking in the MNR's overall approach. Key guides which have been/are being revised based partly on effectiveness monitoring include the fish habitat guide	On-going. The auditors agree with the MNR's assessment that this is not a planning team responsibility, but is under the mandate of corporate

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[13] Sterling Wood Group Inc. 2001. Independent Audit of the Upper and Lower Spanish Management Units. 1995-2001. Ontario Ministry of Natural Resources

Recommendation	Actions Taken	Status
riparian areas.	and the tourism guide. Class EA T&C 93 requires MNR to periodically (at least every 5 yeas) to review all implementation manuals. As guidelines are updated, AOC requirements are reviewed.	MNR.
2. An enforcement strategy should be developed by MNR to discourage vehicle access to designated tourism lakes where the original AOC prescription is not effective in protecting the lake.	Domtar and MNR are working on ownership strategies as part of a road inventory. Target is for incorporation in 2010 FMP. Action plan from 2000 IFA reports that ACOPs have been modified to reflect increased enforcement patrols, however this audit found that this has not happened. The ACOPs of the three districts are different in terms of quality and the enforcement areas they address. In addition Sudbury and Timmins Districts did not prepare district compliance plans.	Not completed. Recommendation # 16 from this audit directs the MNR to improve their compliance planning.
3. The MNR should amend the provincial guidelines to reflect the impracticality of burying culverts on rock or boulder substrates, and in other situations where burying culverts is not necessary. The MNR should add a section in the provincial guidelines to permit alternative crossing structures other than culverts, especially for small, non-fish streams or wet areas.	MNR is working on a new roads and watercrossings guide which will address these issues. Target completion date is 2006.	On going
4. The company should prepare a plan for maintaining older roads. Road maintenance and the construction of temporary drainage structures should focus on sections where the road grade slopes down to bridges over fish streams.	This topic is being pursued through the Forest roads and water crossings initiative. Although it is unfortunate that it seems to be taking some time, following the direction identified in the initiative should address maintenance issues.	Likely to be resolved. Recommendation # 6 of this audit directs the company and MNR to jointly complete the inventory of roads and watercrossings for the forest and resolve ownership issues for each road and watercrossing in the inventory.
5. A follow-up summer inspection should be	Only the Sudbury District ACOPs included this in its compliance plans.	Recommendation #

Recommendation	Actions Taken	Status
conducted on the condition of abandoned winter roads.		16 from this audit directs the MNR to improve its compliance planning.
6. The company and MNR should establish document control procedures for obsolete documents.	Both the company and MNR have now have policies related to management of obsolete documents.	Although management of obsolete documents was not an issue in this audit, other aspects of document control were identified as needing improvement and are the subject of recommendations in this audit
7. MNR should conduct inspections according to the plan and document them on FOIR forms for entry into the forest operations and compliance inspection system.	Although review of FOCIS and FOIP data suggests that MNR and Domtar have generally satisfied requirements to perform inspections and submit FOIRS for the full scope of forest operations, timelines to submit completed FOCIS reports into the provincial Compliance Information System within 10 days as specified in the Guideline for Forest Industry Compliance Planning (2001) were sometimes exceeded.	Addressed, but related issue exists.
8. MNR should ensure that the approval of the Spanish SFL for the period 2000-2020 is expedited.	The SFL document has been signed	Completed
9. Unharvested areas should be measured and classified on a block by block basis and the FRI should be updated accordingly	Depleted areas including historic bypass were removed from the planning cover for the 2005 FMP. As depleted areas reach FTG, the previously classed bypass area will be incorporated into the new stand. By-pass was discussed by the 2005 planning team and included in the development of the SFMM input files for the 2005 planning process. By-pass was included in the text of FMP.	Completed
10. MNR should investigate the system used by Forest Renewal Trust trustee for tracking invoices and payments for renewal work carried out	The Trustee and MNR have developed a Service Level Standard agreement that details expectations of Trustee performance. The MNR has reviewed all Renewal Trust accounts so that errors and omissions can be identified. The FRT Advisory Committee reviews Trustree performance on a quarterly basis.	Completed

Two issues which were identified in recommendations of the previous audit surfaced again in this audit – compliance planning and access road management. Although somewhat different nuances of the issues were raised in the the audits, the audit team is concerned that the broader topics appeared to remain as issues in need of addressing. It is our hope that the definitive recommendations identified in this audit will help the company and Ministry address these issues more resolutely.

3.8.9 Licence Extension

The SFL for the Spanish Forest requires that an independent review team conduct a review of the Company's compliance with the terms and conditions of this licence for the period April 1, 2001 to March 31, 2005 and recommend to the Minister whether the term of this licence should be extended for five years. This audit satisfies the licence requirement.

The Audit Team believes that management of the Spanish Forest was in substantial compliance with the laws, licences and Forest Management Plans in effect during the audit period. The Spanish Forest is being managed within the bounds of sustainability as defined and directed by the Ministry of Natural Resources.

Recommendation # 27

The Minister of Natural Resources should extend the Sustainable Forest Licence held by Domtar Inc. for the Spanish Forest (Licence No. 542391) for a further five year period.

4 SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

This audit reviewed the management of the Spanish for the period April 1, 2000 to March 31, 2005. The review included examination of the 2000 FMP and the process of preparation of the 2005 FMP.

This audit makes 27 recommendations and 12 suggestions (Table 11). The findings are directed approximately equally to the MNR and the Company. Several recommendations are directed towards improving administrative aspects of forest management, and several others are intended to ratify, or encourage management actions which, according to both the MNR and company, have been planned for the forest. As noted earlier in this document, the purview of the audit included examination of the extent to which both Domtar and the Ministry of Natural Resources have fulfilled their forest management responsibilities and obligations. This is evident in the fact that the findings of this audit (which have resulted in recommendations and suggestions) have identified many topics which will require the efforts of the Ministry of Natural Resources acting alone, or in concert with the company to address.

The Spanish Forest has a rich history of industrial tenure and this has allowed the company to excel at some aspects of forest management. Nonetheless, recent economic circumstances of the forest industry, corporate restructurings, and the evolving regulatory environment have created a challenging context for management of the Forest. One of the strengths that the company and MNR share is a core of dedicated staff. Although not an audit procedure per se, the audit team found that local company and MNR staff were very committed to good management of the forest; their cooperation through all aspects of this audit was greatly appreciated by the audit team

Some key aspects of forest management which featured prominently in this audit are reviewed below.

The Local Citizens Committee

The LCC works effectively in providing advice to the MNR. It represents a good cross-section of interests, although some additional ones are needed to ensure that the full-suite of interests identified by the MNR are represented. Most obviously, the committee would benefit from regular participation by First Nations representatives. Also conspicuously absent from involvement with the committee is the MNR District Manager. Although the MNR staff member who serves the committee represents the District Manager, the audit team feels that both the committee and the District Manager would benefit if the DM played a stronger, more visible role with the committee. The audit team also believes that the Ministry should place a higher priority on providing logistic and financial support to the committee to foster inter-regional LCC workshops and learning experiences.

Silviculture

The Company's silvicultural performance is very good. Achievements in artificial regeneration, site preparation and tending all achieved, or exceeded planned targets (when adjusted for lower-than-planned harvest achievements). The only aspect of renewal not achieved was natural regeneration. This is attributed to underachievements in harvesting under the shelterwood system, due to lack of suitable markets for white pine and tolerant hardwood during the FMP term, and the fact that the company has fallen behind in completing the surveys used to assess and report on natural regeneration areas. The audit contains a recommendation to ensure the balance of unreported natural regeneration is carried forward to the next FMP term to so that the need to report on and verify the natural regeneration is not lost.

The Company has developed an excellent monitoring program to support its silviculture program and to evaluate effectiveness. Field surveys are conducted at various stages in the management of a stand with the end result of creating an excellent knowledge base for understanding the effectiveness of silvicultural treatment packages and the succession of treated stands. The audit team identified this as a best practice.

Harvest

Harvest levels for the review period were significantly less than planned – only about 66% of the planned area of harvest were achieved. This was attributable to a strike by forestry staff for six months in 2000, a strike at the Nairn sawmill in late 2000 to May of 2001, closure of the Espanola mill for modification for four months in 2001, and a shift to shortwood harvesting beginning in 2002-03 which led to less wood flowing to the sawmill and more wood going to the Espanola pulp mill. Harvest bypass was identified as an issue by the audit team, and a recommendation related to AWS plan development was made to help reduce the amount of bypass and provide more accurate estimates of the actual planned harvest levels each year. The actual harvest volume reported in the 2004-05 Annual Report is understated because in the final year of the audit period, an early spring resulted in a large amount of wood cut in the winter of 2004-05 becoming trapped in the bush. It is estimated that the actual harvest volume was 64 – 65% of planned, which is in line with the analogous harvest area figure.

There were some issues related to utilization that surfaced in this audit, however for the most part they are fairly transient in nature and are being resolved.

Record Keeping

Several aspects of record keeping, particular the MNR's records of the public consultation process were found to be wanting. This is particularly so for the First Nations Consultation process. First Nations involvement in forest management is fostered through a special consultation process which is offered to First Nations communities. Although it is difficult to determine which First Nations have an "interest" in forest management as defined by the MNR, due to poor records the audit team could not determine with certainty how the consultation process was implemented. Although it is obvious that efforts were made to facilitate First Nations involvement, more effort is needed to keep accurate records of this, and other aspects of public consultation. Recommendations to address these issues have been made.

Access

Several aspects of access management were identified by the audit team as important in this audit. These included – management of the east and west branch bridges over the Spanish River (a situation which the audit team believes is being managed well by the MNR), the need for closure on the issue of ownership and liability of forest access roads, and the need for improved maintenance of access roads and bridges. These topics are dealt with in several recommendations in the audit report. Somewhat disappointing to the audit team is that these, or similar access-management issues were identified in the previous audit, but the related recommendations remained at least partially unaddressed.

Compliance Planning and Monitoring

Compliance monitoring on the Forest has been undertaken unevenly by the three MNR districts with management responsibilities. In addition, the compliance planning efforts have been uneven. It is clear that the status quo of having three districts independently involved in compliance planning and monitoring for the Forest is not working smoothly. This audit includes a recommendation that the Sudbury District take the lead in writing a Spanish Forest Annual Compliance Operations Plan (ACOP) containing relevant analysis, consistent coordinated direction, and specific quantitative compliance targets for the Spanish Forest for 2006-2007 and annually thereafter.

Wildlife

Ontario's forest management planning process requires that future habitat supply for some representative species of wildlife be simulated using SFMM - the computer model which makes comparable projections for wood supply. The acceptable bounds of sustainability identified by the MNR for this exercise are very broad. The simulation results for both the 2000 and 2005 FMPs show declines in habitat for most of the selected wildlife species, and in the 2005 FMP, projected habitat levels for most species decline any level simulated in a benchmark run intended to predict how the Forest would behave in the absence of human disturbance. In spite of these very extensive and deep declines in projected habitat for some species, they fall within the bounds of sustainability as identified by the MNR. The audit team has concerns that the MNR-defined bounds of sustainability are too broad – the projected management of the forest will lead to habitat levels below any projected by the benchmark run, but yet fall within the range of acceptability as defined by the MNR. The audit includes a recommendation for the MNR to revisit its definition of sustainability in this regard.

Table 11. Recommendations and suggestions made in this audit.

Principle: Commitment

Suggestion:

1. The MNR Espanola and Sudbury offices should display MNR corporate policy materials related to SFM and make available documents that assist the public in understanding SFM, including documents that explain the role of the public in the SFM planning process.

Recommendations:
None

Principle: Public Participation

Suggestions:

2. The revised Terms of Reference for the LCC should address the minor deficiencies in the present ones. The revisions should include a clear statement of responsibility for preparation of meeting minutes, clear procedural rules, the requirement to attempt to include membership as described in the Forest Management Planning Manual, and an annual review of membership.
3. The MNR Sudbury District Manager should become more involved with the LCC.
4. MNR should continue to place a high priority on providing logistical and financial support to host regular (annual) regional/inter-regional LCC workshops/meetings.
5. The MNR should continue to attempt to make use of First Nations newspapers to advertise forest-management related activities.
6. Maps provided as part of public notices for aerial herbicide projects should provide sufficient detail to allow for the identification of the location of these projects.

Recommendations:

1. MNR Should review its record-keeping practices related to public and First Nations Consultation and develop and implement a process to accurately record the measures taken during these portions of the Forest Management Planning Process.
2. The MNR should develop an official list of "interested" First Nations for the Spanish Forest, identify the criteria used to determine whether a First Nations community qualifies as "interested", and advise the company whenever the list is updated.

Principle: Forest Management Planning

Suggestions:

7. The planning team for the 2010 FMP should institute measures to improve the quality and consistency of planning team minutes.
8. Corporate MNR, in consultation with the Company, should consider developing a strategy for the future FRI update for the Spanish Forest.
9. The Company should review its approach to harvest and access pre-planning to ensure that

its efforts are conducive to meeting timing requirements for in-stream work.

10. The Company should develop strategies to reduce the number of AWS revisions.

Recommendations:

3. MNR should ensure that the Terms of Reference for the 2010 FMP for the Spanish Forest is approved prior to submission of the first public notice of the formal public consultation process as required by the FMPM (2004).
4. Corporate MNR should provide adequate funding to meet its obligation for collection and provision of accurate values information on the Spanish Forest.
5. Corporate MNR should revise the direction provided to planning teams which permits broad and extensive declines in wildlife habitat and habitat levels to fall below those predicted to occur in the SFMM benchmark runs.
6. The MNR and Company should jointly complete the inventory of roads and water crossings the forest and resolve ownership issues for each road and water crossing in the inventory.
7. The MNR should take measures to ensure that required alterations relating to the manipulation of forest cover for the 2010 FMP are certified by an R.P.F.
8. MNR should assign responsibility for amendment and plan upkeep at all required locations and should take immediate steps to ensure that required FMP amendment documentation is forwarded to all locations as required by the FMPM.
9. Domtar should reduce the size of future AWS harvest allocations in comparison to the average annual rate of depletion forecast in the FMP. This should be done in consultation with District and Regional MNR to determine acceptable ranges.

Principle: Plan Implementation

Suggestion:

11. The Company should consider approaches for accelerating the process of deciding when it will not be harvesting stands allocated in the FMP and provide prompt notice of their availability to other potential harvest operators.

Recommendations:

10. Domtar and Grant Forest Products should ensure that the wood harvested in the winter of 2004-05 that is remaining at roadside is hauled to mill as soon as feasible.
11. The Company should ensure that the merchantable pieces of wood that have been left at roadside are utilized and should continue to adopt measures in the woodlands and in the mill that will increase fibre utilization.
12. By March 31, 2006, the Company should make appropriate adjustments to the renewal targets in the 2005-2010 FMP to ensure that the balance of unreported natural regeneration area from the 2000-2005 FMP term is carried forward. The Company should take appropriate measures to ensure that the reporting of natural regeneration will substantially meet the 2005-2010 FMP forecasts on an annual basis.
13. The Company should ensure that adequate training related to road maintenance is provided

to its staff and that appropriate training messages are provided to contractor staff.

14. By March 31, 2006 the Company and Ministry should jointly decide on the repairs required to all bridges on primary and secondary roads, and develop a timetable to which the company should commit for making the repairs.

15. The MNR and company should determine whether a new culvert is required at the Wapejo Creek crossing using current MNR standards. If a new culvert is required, the company should replace the existing damaged one.

Principle: Systems Support

Suggestions:
None

Recommendations:
None

Principle: Monitoring

Suggestions:
None

Recommendations:

16. MNR Sudbury District should take the lead in writing a Spanish Forest ACOP containing relevant analysis, consistent direction, and specific quantitative compliance targets for the Spanish Forest for 2006-2007 and annually thereafter.

17. Domtar should include Monitoring Inspection Reporting Schedules and an expanded discussion of compliance history and analysis of compliance priorities in future Annual Forest Compliance Plans.

18. Domtar staff, contractors and compliance inspectors should perform a greater number of joint inspections with MNR to develop a common understanding of operational standards applying to various types of operations. This strategy should be supported by remedial training on targeted subject areas.

19. Domtar should perform final inspections on the backlog of harvest blocks that were harvested during the audit period by September 30, 2006 and submit "Completed" inspection reports for each.

20. MNR should verify all industry submitted non-compliant FOIRs in accordance with the Guideline for Forest Industry Compliance Planning (2005).

21. The Company should identify any depleted stands that are ready for free-to-grow assessments and schedule the appropriate surveys within the current FMP term.

22. MNR should ensure the timely review of future annual report submissions.

23. Domtar and MNR should improve their documentation of AR submission, review and approval dates.

24. The audit team strongly recommends that Corporate MNR revise the 2004 FMPM to require MNR review of all annual reports and consider alternate ways to handle relevant workload issues.

Principle: Achievement of Management Objectives and Forest Sustainability

Suggestions:
None.

Recommendations:
None

Principle: Licence Obligations

Suggestion:

12. Domtar, MNR and First Nations should continue to seek means to allow meaningful participation of First Nations in SFM while at the same time addressing the concerns of local forestry worker unions.

Recommendations:

25. The 30.7 ha site preparation error for the 2003/04 fiscal year should be reconciled with the Forest Renewal Trust account for the Spanish Forest.

26. Domtar and MNR should track and report on efforts made to work cooperatively with First Nations on the Spanish Forest per Section 20 of the SFL.

27. The Minister of Natural Resources should extend the Sustainable Forest Licence held by Domtar Inc. for the Spanish Forest (Licence No. 542391) for a further five year period.

Conclusion

The Audit Team believes that management of the Spanish Forest was in substantial compliance with the laws, licences and Forest Management Plans in effect during the audit period. The Spanish Forest is being managed within the bounds of sustainability as defined and directed by the Ministry of Natural Resources. The Minister of Natural Resources should extend the Sustainable Forest Licence held by Domtar Inc. for the Spanish Forest for a further five-year period.

Appendix A: Trend Analysis

This appendix was been prepared by Domtar Inc.

Spanish Forest 2005 Independent Forest Audit

Comparison and Trend Analysis of Planned vs. Actual Forest Operations Report

June 6, 2005

Domtar

1859
MARC TROTTIER

Prepared by:

Marc D. Trottier, R.P.F.
Regional Forest Management Planning Coordinator

2005 Independent Forest Audit - Spanish Forest

Comparison and Trend Analysis of Planned vs. Actual Forest Operations

Introduction

This Comparison and Trend Analysis (Forest Manager's Report) for the Spanish Forest was prepared for the 2005 Independent Forest Audit as per the requirements in the February, 2005 Independent Forest Audit Process and Protocol. The Spanish Forest, comprises of the former Upper Spanish Forest (USF) and Lower Spanish Forest (LSF). Traditionally, these two forests have been managed by the company as one unit, with separate planning and reporting requirements. Following is an excerpt from the current Spanish Forest Management Plan, section 2.2 (Management Unit Description) and Figure 1 showing the location of the Spanish Forest within the Northeast Region;

> *The USF and LSF were at one time licensed under a Timber Concession Agreement between the Minister of Lands and Forests and the Kalamazoo Vegetable Parchment (KVP) Company. This agreement was signed May 26, 1944. The KVP Company had recently acquired the ground wood mill owned by the Abitibi Power and Paper Company Limited in Espanola. KVP rebuilt the Espanola mill as a Kraft pulp mill and operated the facility until its sale to the Brown Corporation in 1966. In 1969, George Weston Limited purchased all Canadian operations of Brown Corporation and operated the facility under the name of E. B. Eddy Forest Products Ltd.. Effective July 31, 1998 Domtar Inc. completed the purchase of E.B. Eddy from George Weston. Domtar Inc. is responsible for, all forest management activities on the SF including, forest management planning, the functions of harvesting, silviculture, renewal, delivery of fiber, proactive management of policy issues and key relationships with forest stakeholders.*
>
> *Effective April 1, 1980, E.B. Eddy and the Ministry of Natural Resources entered into Forest Management Agreement No. 500400 for the USF and No. 500500 for the LSF. As part of these agreements, Timber Management Plans have been prepared for the 1980-2000, 1985-2005, 1990-2010 periods, and a Forest Management Plan for the 1996-2015 period. In keeping with the Crown Forest Sustainability Act (1995) (CFSA), the Forest Management Agreements for the USF and LSF were amended on November 8, 1994, creating deemed SFL's. As of April 1, 2002, the amalgamation of the USF and LSF was implemented under a sustainable forest license number 542391 at which time, the 2000-2020 forest management plan started implementation. A 1999 Crown Forest Management Plan for the USF was written as a result of the Judicial Review.*
>
> *The 1990-2010 Timber Management Plans were scheduled to be renewed in 1995. Due to delays in the preparation of a new Forest Resource Inventory, and a potential undercut as a result of shut-downs due to strikes, high fire hazard and depressed market conditions for lumber and pulp, approximately 12-months of operations were not conducted. As a result, Contingency Forest Management Plans were prepared that permitted operations to continue until March 31, 1996. This created an anomaly in the antecedent planning period, which was for a 19-year period, in order to maintain the Ministry of Natural Resources planning schedule.*
>
> *The boundaries of the former USF have not significantly changed since 1980. Commencing on April 1, 2005 the portions of Lampman, Frechette, Sweeny, Beaumont and Roberts townships on the eastern side of the railway and all portions of Hutton, Creelman, Beresford, McNamara, and Leask townships on the Southeast corner of the Spanish Forest will be transferred to the Sudbury Forest. The Sudbury Forest is also preparing a 2005-2025 Forest Management Plan for which the change in boundaries will be reflected on all maps. This was a business decision made by Domtar Inc.*
>
> *As the northern portion of the Forest overlaps two district boundaries, Sudbury District has traditionally been designated the lead district. Administration of the Timmins portion is done out of the Gogama Area office. The Espanola Area Office, of the Ministry's Sudbury District, traditionally controlled the southern portion (former*

LSF). The Sudbury District has been designated as the lead district for the newly amalgamated Spanish Forest. The Crown Representative is stationed in the Espanola area office.

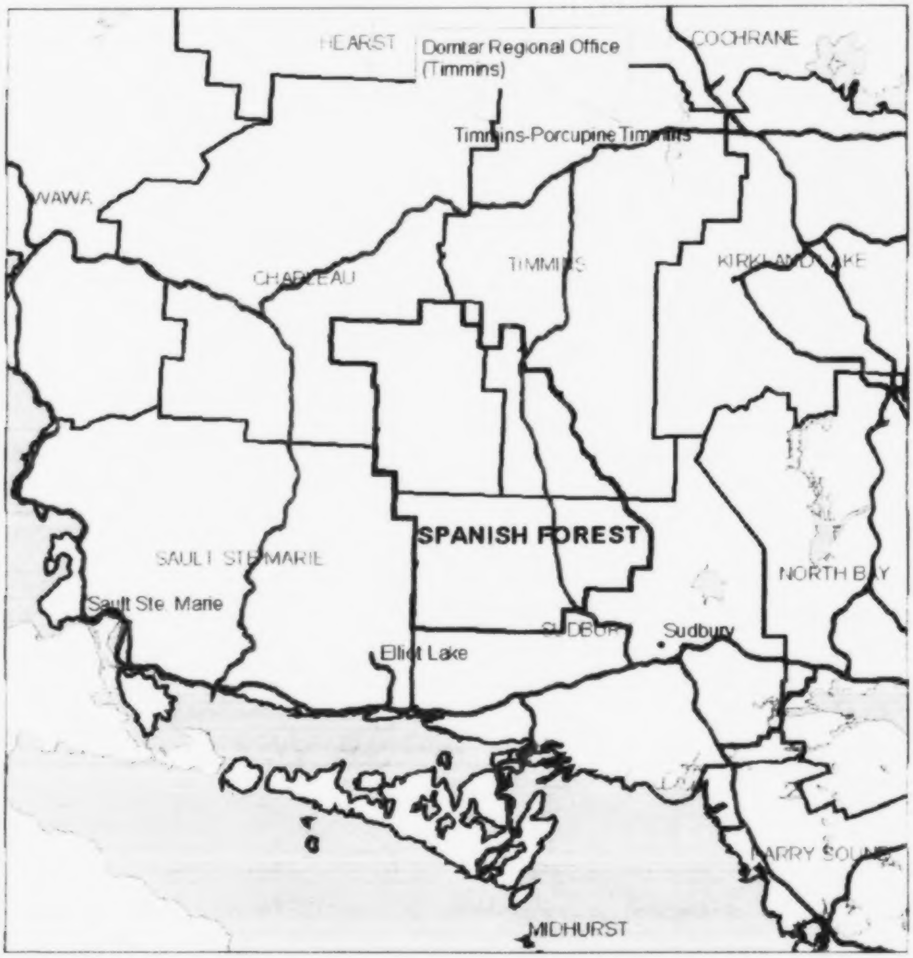

HEARST
Domtar Regional Office (Timmins)
COCHRANE
Timmins-Porcupine Timmins
WAWA
CHAPLEAU
TIMMINS
KIRKLAND LAKE
SPANISH FOREST
SAULT STE MARIE
Sault Ste. Marie
NORTH BAY
SUDBURY
Sudbury
Elliot Lake
PARRY SOUND
MIDHURST

Figure 1. The Spanish Forest in Relation to MNR Districts and the Northeast Region

Legend
Rivers
Highways
Northeast Region
Lakes
Spanish Forest
MNR Districts
N

Scale: 1:2,000,000

As previously described, the 2000-2005 Spanish Forest Management Plan and all of it's reporting documents consisted of an amalgamation of the former LSF and USF. **As a result and for ease of comparison, this Forest Manager's Report rolls up reported numbers from previous LSF and USF plan terms together as the 2000-2005 is an amalgamation of the previous LSF and USF landbase.**

The 2005 Independent Forest Audit (IFA) covers the period from April 1, 2000 to March 31, 2005 on the Spanish Forest management unit. This period includes one Forest Management Plan (FMP's) as follows:

- Spanish Forest 2000-2005 FMP

Past plans used to explore trend are as follows:

- USF 1990-1996 FMP
- USF 1995-1996 Contingency FMP
- USF 1996-2000 FMP
- USF 1999-2000 Contingency FMP
- LSF 1990-1996 FMP
- LSF 1995-1996 Contingency FMP
- LSF 1996-2000 FMP

The 1995-1996 Contingency FMP's were written as a result of actions taken during the term of the 1990-1995 FMP. Due to delays in the preparation of a new Forest Resource Inventory (FRI), a potential undercut as a result of labour disputes, and shutdowns due to high fire hazard and depressed market conditions for lumber and pulp, approximately 12 months of operations were not conducted. Because of this situation, the 1990-1995 FMP's were extended through one-year contingency plans. **No new operations were proposed in these plans.**

To keep the FMP's on the previously established five-year schedule, the following plans were written for a four-year period, from April 1, 1996 to March 31, 2000.

In the winter/spring of 1998, an Ontario Judicial Court declared the 1996-2000 USF FMP to be null and void and of no force and effect for failure to comply with the Crown Forest Sustainability Act (CFSA) and the Forest Management Planning Manual (1996 FMPM), such declaration to be temporarily stayed and not to take effect until March 31, 1999. Therefore, a Contingency FMP was prepared to meet the requirements of the CFSA and FMPM, to allow operations to take place on the USF from April 1, 1999 to March 31, 2000.

This report covers managed Crown land only. It includes (Appendix 1) a summary (highlights) of the most current Report of Past Forest Operations (RPFO) for the April 1, 1996 to March 31, 2000 period for the former LSF and USF and the April 1, 1999 to March 31st 2000 period for the former USF. It also includes seven tables (the Forest Manager's Report [FMR] tables). The FMR tables include information from the current FMP, plus two preceding terms.

Forest Manager's Report Tables

The scope of the Spanish Forest 2005 IFA is the 2000-2005 plan term. However, this report looks at this (2000-2005) plan term and compares it to past plan terms (mostly the 1996-2000 term). As previously explained, past plan terms where prior to the Spanish Forest Amalgamation of the former Lower Spanish Forest (LSF) and the Upper Spanish Forest (USF). As a result, it was felt that for comparison purposes, it would be more useful and practical to roll up reported numbers from past plan terms for the USF and LSF. Unfortunately, the USF 1999-2000 contingency plan could not be rolled up as none exist for the LSF. It was decided to track this term separately but it should be noted that the figures only compare with other plan terms where numbers are being annualized.

Table 1 - Summary of Total Area Under Management

The source of information for past planning terms is the 2000 Manager's Trend Report and the 2000-2005 FMP. It sourced info from;

- table 4.8.2 from the 1990-1995 TMP for both USF and LSF.
- Table 4.8.2 from the 1996-2000 TMP for both USF and LSF.
- tables FMP-1 and FMP-2 for the 1999-2000 USF FMP.
- tables FMP-1 and FMP-2 for the 2000-2005 Spanish FMP was sourced for this report.

Only managed Crown land is summarized. This includes ownership code 1 area only, and does not include parks, conservation reserves, withdrawals, exclusions or patent land. The exception to this is in the 1996-1999 column, where water, non-forested and non-productive includes all ownerships as per table 4.8.2. Also, area was withdrawled from the landbase between 1990 and 1996 on the former LSF (the Bark Lake Old Growth Site) which eventually became a provincial park after 1996.

A new, digital Forest Resource Inventory (FRI) was completed in 1992, and was used in the preparation of the 1996-2000 FMP. Prior to this, the updated (for depletion and accruals) 1973 FRI was used. Some notable differences between the two FRI's include:

- Fewer small (<2 ha) unproductive polygons in the 1992 FRI
- Less Protection Forest (PF) in the 1992 FRI due to differences in classification techniques
- Decrease in area of balsam fir working group between 1973 and 1992 due to insects and disease

These differences resulted in changes in forest composition between 1990 and 1996. The non-productive area decreased by over 54,000 hectares as many of the smaller non-productive polygons from the 1973 FRI were coalesced into larger surrounding forested stands. The area of protection forest decreased by about 52,000 hectares as age:height relationships were used to determine site class in 1992, rather than the appearance of exposed bedrock in 1973. Area by working group changed as natural and post-harvest succession occurred over the 20-year period. The area of water decreased slightly, possibly due to changing water levels and beaver activity. Total area also changed slightly as the method of measurement changed from manual dot grids and planimeters to computerized Geographic Information Systems (GIS). Even different GIS projections (eg. UTM NAD 83 versus UTM NAD 27) will output different area results for the same features.

In 1999, Production Forest area was lost due to the Ontario Living Legacy (OLL) process. This reduction can be seen in the total area from the 2000-2005 plan term. OLL area is under parks and protected area and not under crown managed.

From 1990-1996, tolerant hardwoods were lumped together in the Hardwood working group (H). Since 1996, the individual working groups (By and Mh) were separated, with working group H included only soft maple (Ms). The area of Production Forest increased between 1996 and 1999 due to re-classification of large islands (>20 ha) as Protection Forest. In 1996 these were considered Protection Forest and were not part of the production forest.

A gradual increase in the Barren & Scattered/Not Sufficiently Regenerated (B&S/NSR) area can be seen from 1990 to 1996, with a decrease in 1999. This is due to areas that were declared Free-to-Grow (FTG) not being added back into the inventory on a regular basis. For the 1999-2000 Contingency FMP, the inventory was updated including all FTG areas. This resulted in a decrease in B&S/NSR area and an increase in area of certain working groups -most noticeably jack pine, spruce, poplar and white birch. The current B&S/NSR area is consistent with the area that was recently harvested and not yet FTG age (approximately 8 years after harvest).

An other significant difference in the 2000-2005 plan term compared to past plan terms is the area of Production Forest under "Depleted". Past plans have summarized this info under "B&S/NSR". The Depleted area in 2000-2005 is equivalent to previously reported NSR (area depleted yet not successfully regenerated). A decrease in "Depleted" (NSR) area can be seen in the 2000-2005 FMP term compared to past terms. This is directly as a result of silvicultural assessment results, allowing previously NSR area to be transferred to young, forest stands. One can see an increase in area in preferred species of the day (SPF) and a reduction in less desirable species of the day (ie. hardwoods). The reduction in the Pw and Pr production area can mostly be attributed to the park and protected gain (production forest area loss). Park and Protected areas as a result of OLL on the Spanish had a very high concentration of Pw and Pr composition.

Table 2 - Description of Forest Units

This table shows the transition between working groups and forest units.

The source of information for past planning terms is the 2000 Manager's Trend Report and the 2000-2005 FMP. It 2000 IFA report sourced info from.

- table 4.15 from the 1990-1996 TMP for both LSF and USF,
- table 4.13 from the 1996-2000 TMP for both LSF and USF,
- table FMP-8 from the 1999-2000 USF FMP,
- table FMP-8 from the 2000-2005 Spanish FMP was sourced for this report.

For the 1990 plan, the standard working groups were used to describe forest units. In 1996, these were refined into 12 forest units to better describe the productivity, silvicultural response and operability of the forest. Another change between 1990 and 1996 was the introduction of shelterwood harvest for white pine and tolerant hardwoods.

Based on experiences from the 1996-1999 period, these were further refined for the 1999-2000 USF Contingency FMP. For example, some of the 1996 black spruce forest unit (SB) stands were upland, sandy soils while most were wet, organic soils. Also, some of the mixed conifer (MC) stands were wet, organic sites, while most were upland, sandy soils. The algorithm was changed slightly to reclassify the upland sites as MC, and the lowland sites as SB. This improved planning for harvest and silviculture, and also suited the wildlife habitat matrix classification better.

Two smaller units were eliminated between 1996 and 1999 - poplar (PO) and white birch (BW). These were amalgamated into the mixed hardwood forest unit (MH) which was then split into birch dominated hardwood (MHBW) and poplar dominated hardwood (MHPO).

The white and red pine forest units were modified in 1999 to reflect the prescriptions that the certified tree markers were marking in the field.

A forest unit was also added in 1999 for hard maple stands to allow for selection harvest (HSE). The 2000-2005 Spanish Forest adopted the Forest Unit Definitions from the 1999-2000 USF FMP. The changes mentioned above then applied to the former LSF for consistency.

Table 3 - Summary of Planned & Actual Harvest Volumes

The sources for the annual planned volumes for this report referenced the 2000 IFA Manager's trend report and the 2000-2005 FMP. The numbers were divided by 5 as the table requires numbers to be annualized. It sourced as follows:

- table RPFO-4 from the 1990-1996 TMP for both the USF and LSF.
- table 4.18.1 from the 1996-2000 TMP for both USF and LSF.
- Table FMP-23 from the 1999-2000 USF contingency plan. This was already annualized (one year contingency plan).
- Table FMP-23 from the 2000-2005 Spanish FMP was sourced for this report.

The sources for the annual actual volumes for this report referenced the 2000 IFA Manager's trend report and the most up-to-date Report of Past Operations (RPFO). The information was sourced as follows:

- table RPFO-4 from the 1990-1996 TMP for both USF and LSF as per the actual harvest (one year of operations did not occur due to labour disputes, fire shutdowns, and market conditions)
- table RPFO-4 from the 1996-2000 TMP for both the USF and LSF. (the USF 1999-2000 numbers were reported separately as it operated under a one year contingency plan).
- table RPFO-4 from the 1999-2000 USF contingency FMP (numbers were already annualized).
- For the 2000-2005 Spanish FMP, no RPFO data available at the time of this report. No estimates made.

Prior to 1999, balsam fir planned volumes were lumped in with spruce. However, the actual volume in 1996-1999 included a separate line for balsam fir.

In 1999, all volumes are shown as planned, including unutilized volume. Unutilized volume is wood in areas planned for harvest (not including surplus area) that is not expected to be marketable at time of harvest. This wood may be left standing, and the area may be declared as bypass if large enough, or some may be felled and left on site.

The actual SPF volumes compared to planned volumes are 90%, 65%, and 86% for 1990-1996, 1996-2000, and 1999-2000 USF respectively. At the time of this report, no RPFO data was yet available for the 2000-2005 Spanish plan term. No estimates were made. Traditionally, demand for Spruce-Pine-Fir (SPF) has been higher on the USF. Harvest volumes were down slightly for 1998-1999 due to a labour dispute from January 1999 to July 1999. Therefore, the final three months of operations did not occur in that period. Traditionally, the former LSF experienced lower volume recovery compared to the FRI estimates due to more inoperable areas due to rugged terrain, higher cull when compared to the former USF.

White and red pine volumes are significantly above planned. The volume planned was tabled as unutilized in the past. Fortunately, the utilization levels for these species were much higher than planned. As a result, wood supply agreements were issued in 2002 for Red and White pine to two nearby specialty sawlog operations. In addition (less significant), some areas mistyped in the FRI as white birch or jack pine were actually red pine, and also many scattered white and red pine individuals that do not show up in the FRI description account for a significant portion of the harvested volume.

Demand for hardwood species on the Spanish has been poor in the past. However, the utilization levels are on an increasing trend since 2000. Small amounts of white birch and tolerant hardwoods are harvested for veneer and firewood. The suitability of white birch for oriented strand board (OSB) is slowly increasing white birch utilization. The market conditions are quikly increasing the value of hardwood species (ie. Aspen / Poplar).

Over the years, there has been developing commitments for hardwoods on the Spanish Forest. Currently (2005), the Spanish Forest has wood supply commitment for 1,040,600m3/yr of hardwood (Po,Bw,TH). These levels will be difficult to sustain into the future. Utilization however of these species is only at approx. 31% and 47% for 1996-2000 and 1999-2000 USF plan terms. As market conditions better, one could expect better utilization of these species as their value increases with demand.

Since 1999, there has been a commitment for poplar, white birch and tolerant hardwoods to the Espanola pulp mill. This has not been utilized to date. Because of the current oversupply of these species from traditional sources, utilizing these species from the Spanish Forest would only displace operators on other forests who are currently supplying the pulp mill. This commitment will be important in the future as long term wood supply sustainability projections show a decreasing supply, and with MNR's request for new business opportunities to utilize low-grade hardwoods. Domtar Inc. plans for more of this wood to be fully utilized over the next 10 years.

Table 4 - Summary of Planned & Actual Harvest Area

This table compares planned harvest area to actual harvest area.

The sources for the annual planned harvest areas for this report referenced the 2000 IFA Manager's trend report and the 2000-2005 FMP. The numbers were divided by 5 as the table requires numbers to be annualized. It sourced as follows:

- table RPFO-2 from the 1990-1996 TMP for both USF and LSF.
- table 4.16 from the 1996-2000 TMP for both USF and LSF.
- Table FMP-19 from the 1999-2000 USF contingency FMP (numbers already annualized).
- For the 2000-2005 Spanish FMP, no RPFO data available at the time of this report. No estimates made.

The sources for the annual actual areas harvested are as follows:

- table RPFO-2 from the 1990-1996 TMP for both USF and LSF as per the actual harvest (one year of operations did not occur due to strikes, fire shutdowns, and market conditions)
- table RPFO-2 from the 1996-2000 TMP for both the USF and LSF. (the USF 1999-2000 numbers were reported separately as it operated under a one year contingency plan).
- table RPFO-2 from the 1999-2000 USF contingency FMP (numbers were already annualized).
- For the 2000-2005 Spanish FMP, no RPFO data available at the time of this report. No estimates made.

For simplicity, the forest unit column shows the most recent forest units from 2000-2005. The areas by working groups for 1990-1996 and forest units from 1996-2000 are recorded in the most appropriate row. For example, PJPUR-Jack Pine includes the PJ forest unit and Pj working group.

Several changes can be seen as we moved from allocating areas by working group to forest unit. The area of PJPUR allocation did decrease between 1996 and 1999 due to new modeling techniques, updated landbase, and different objectives in the later plans. The MHPO and MHBW allocation increased significantly between 1996 and 1999 because of the change in that forest unit. However, total allocation between the 1996 MHPO, MHBW and MH forest units and the 1999 total MHBW and MHPO allocation is similar.

Overall, there has been a shift towards allocating more harvest area in the 2000-2005 plan term compared to the1996-2000 and 1999-2000 USF plan terms. This reflects some advantages of the amalgamation and changes in objectives and constraints in the 2000-2005 wood supply model.

The actual harvest area compared to planned areas are 77%, 57%, and 90% for 1990-1996, 1996-2000, and 1999-2000 USF respectively. At the time of this report, no RPFO data was yet available for the 2000-2005 Spanish plan term. No estimates were made. Harvest levels were down slightly for 1998-1999 due to a labour dispute from January 1999 to July 1999. Therefore, the final three months of operations did not occur in that period.

It should be noted that even though SPF volume utilization was very close to planned, reported harvest area is lower (when comparing volume levels in table 3). This is mainly due to unharvested areas (bypassed) having lower average volumes per hectare than harvested areas. Also, FRI volumes appeared to be slightly aggressive in the 1996-2000 period. For example, in 1996-2000 the SPF type forest units (PJPUR, MXCON, SBLOW, MXWD) show area harvested as only 57% of planned, whereas volume utilization was about 73% of planned.

The difference in planned vs. actual harvest area for the hardwood forest types reflects the market conditions for those species. However, some of those stands were harvested mainly for the SPF volume, with only partial utilization of the hardwood volume.

Table 5 - Summary of Managed Productive Forest by Forest Unit

This table summarizes the managed Crown productive forest by forest unit. The sources of the Managed Productive Forest by Forest Unit for this report referenced the 2000 IFA Manager's trend report and the 2000-2005 FMP. It sourced as follows:

- table 4.8.2 from the 1990-1996 TMP as originally planned for both USF and LSF.
- table 4.13.1 from the 1996-2000 TMP as originally planned for both USF and LSF.
- table FMP-9 from the 1999-2000 USF contingency plan
- table FMP-9 from the 2000-2005 Spanish FMP was sourced for this report.

This table shows associated volumes for the 1999-2000 USF contingency FMP and the 2000-2005 Spanish FMP period only. This information was not available in previous plans in this format.

Unavailable area is defined as the area reserved from harvest to protect identified values such as moose aquatic feeding areas, water quality, tourism lakes, etc... This was summarized for the 1996-2000, 1999-2000 USF, and the 2000-2005 FMP's using information from FMP-9. Prior to the 1996 plan, all values on the Spanish Forest were inventoried and spatially described in the GIS.

There are minor differences between the 1996-2000 and 2000-2005 totals for Protection Forest, unavailable and available due to changes in AOC prescriptions, classification of Protection Forest area (large islands), and MNR's Natural Resource Values Information System (NRVIS). The significant reduction in the available area from the 1996-2000 and the 2000-2005 FMP can mostly be attributed to area lost from crown managed during Ontario Living Legacy Process in 1999. The 1999-2000 USF FMP tabled this loss of production area. However, the numbers are annualized and can't really be compared to a five year, larger landbase plan term (2000-2005 FMP). The same applies for volume differences.

Table 6 - Summary Report of Renewal, Tending and Protection Operations

This table summarizes the renewal, tending and protection operations on the Spanish Forest. The table shows all forest units combined.

Natural regeneration levels vary from term to term but are generally slightly lower than planned other than in the 1996-2000 term. Part of this is due to natural regeneration being planned in hardwood areas, which have a higher incidence of bypass. In 1999-2000, some area was not declared as natural regeneration because the company generally waits until all artificial regeneration has been completed in the area before declaring areas as natural regeneration. In this case, that area would fall into the 2000-2005 plan term. Because of the 1999 labour dispute as previously discussed, only about a third of the mechanical site preparation was done, and therefore a smaller amount of adjacent area was declared as natural regeneration.

The 2000-2005 natural regeneration forecast were quit aggressive. The planned levels were based on the planned harvest levels previously discussed in Table 4. Lower than planned harvest levels and higher than planned planting levels contribute to lower levels of natural regeneration.

For the 1990-1996 and the 1999-2000 USF terms, the planting and seeding levels closely match the planned levels, with some switching between planting and seeding. The 2000-2005 plan term has higher planting levels than any of the previous plan terms explored in this report.

The 1999-2000 USF tree plant was affected by the labour dispute, which was ongoing during the traditional tree plant and mechanical site preparation time of operation. The company decided to seed some of the area scheduled for planting, rather than wait to plant it the following years. The company was able to do a small fall tree plant, but the majority of the scheduled 1999 plant was completed in the spring of 2000.

Mechanical site preparation closely matches planned levels, with 1999-2000 USF being the exception because of the labour dispute. The backlog from 1999 was be completed in the summer of 2000. Chemical site preparation levels have been decreasing since 1990. This is because the lag between harvest and artificial regeneration decreased and also because Domtar Inc. found that most chemical site preparation areas had to be retreated for conifer release before the areas were FTG. This change in strategy can be seen since 1999 where no chemical site preparation was planned and the 2000-2005 level is slightly over 100ha. Prescribed burns have been very difficult to schedule due to weather and manpower, resulting in few being planned and fewer being carried out. One change since earlier plan terms is the ability to track slash pile burn areas. The 2000-2005 plan term started reporting area of slash piles treated.

Manual cleaning levels were above planned for all periods except 1999-2000 USF and the 2000-2005 plan terms. The 1999-2000 USF anomaly was due to the labour dispute. The cost of manual cleaning during the 2000-2005 plan term was deemed qwite costly by Domtar Inc. Alternatives (such as Aerial tending) was preferred. In previous periods, either the company's "student crew" or a contractor carried out the work, generally on small areas that were not planned for at the FMP stage. A small amount of chemical ground spraying was done in 1998 in a 1993 white spruce plantation.

Aerial chemical cleaning is above planned levels for every period except 1999-2000 USF. Again, the 1999 labour dispute forced Domtar Inc. to cancel contracts that year. Contracts were eventually re-awarded and the company was able to get some work completed as schedules permitted. Generally, the company have underestimated the requirement for conifer release treatments. The 2000-2005 plan term better estimated the use of Aerial chemical tending.

Pre-commercial thinning levels are comparable to planned levels. The 2005-2010 FMP forcasted approx 1500ha to be thinned, which is consistent with the actual levels achieved from the 2000-2005 plan term.

Unfortunately, we can not yet compare the 2000-2005 actual silvicultural levels against the 2000-2005 actual harvest levels. However, Table 3 indicates much higher planned harvest levels that previous plan terms. As a result, it makes sense that Table 6 - 2000-2005 planned silvicultural levels somewhat follow this trend. Overall, it appears that the actual 2000-2005 silvicultural levels are consistently lower than the planned levels. Once the actual harvest levels are reported (winter 2005), the company expects that the actual silvicultural levels will reflect the actual harvest levels.

Table 7 - Harvested Area Successfully Regenerated - Summary of All Forest Units

This table summarizes the area harvested (not including bypass) in the 1990-1996 period (37006 ha) in terms of area surveyed for regeneration success (30904 ha), and area declared successfully regenerated or Free-to-Grow

(FTG) (30175 ha). The 1990-1996 period was summarized to address the time lag that occurs prior to the point when regeneration can be assessed for success. Areas are normally assessed for FTG status seven years after treatment. Generally, natural and artificial treatments occur between one and three years after harvest. The majority of the 1990-1996 harvest areas were treated by 1998, and therefore assessed for FTG status beginning in 1997 and ending in 2006

Approximately 5362 hectares of productive forest have not yet been assessed by 2005 (6102 ha unsurveyed minus 740 ha not available). There is 3171 ha scheduled for survey in 2005, thus leaving 2,191 ha to be surveyed in 2006. Most of these areas were not treated until 1998 or 1999 due to delays in mechanical site preparation treatments.

There is approximately 3% of the area surveyed that is Not Satisfactorily Regenerated as documented in Table 7. The principal reason for this area not being declared free growing is the need for further tending treatments.

A recurring TMP and FMP Objective for the Spanish Forest that has principally driven the renewal programs has been one of shifting the forest composition towards larger proportions of jack pine working group stands or jack pine dominated forest units. Historic forest conditions indicated that jack pine existed in larger proportions than it does in our recent time. In addition to determine efforts to maintain jack pine on sites from which it was harvested, significant efforts were made to ensure jack pine would dominate sites where very little, if any, was present at the time of harvest.

A Silvicultural Effectiveness Monitoring tool was developed by Domtar in early 2005. The FTG, Renewal (Prep, Regen, NatRegen, Tend, Thin) and PrimaryForest GIS coverages are used to document detailed treatment histories of areas declared as FTG by their original and newly created Forest Unit designation. The total area assessed and declared FTG from 1999 to 2004 (34,421 ha) was analyzed using this tool. The majority, if not all of this area was harvested during the 1990 to 1996 period.

The following ranges of success rates of establishing either jack pine or jack pine/spruce dominated forest unit stands, are documented for 11,971 ha Intensively treated (planted) sites:

- for those sites where pre-harvest stand conditions were either pure hardwood or mixedwood – 86 to 90%
- for those sites where pre-harvest stand conditions were mixed-conifer dominated – 86 to 98%
- for those sites where pre-harvest stand conditions were jack pine or jack pine/spruce dominated – 90 to 92%

The following ranges of success rates of establishing either jack pine or jack pine/spruce dominated forest unit stands, are documented for 12,045 ha of Basic level treatments (seeded):

- for those sites where pre-harvest stand conditions were either pure hardwood or mixedwood – 69 to 92%
- for those sites where pre-harvest stand conditions were mixed-conifer dominated – 94 to 95%
- for those sites where pre-harvest stand conditions were jack pine or jack pine/spruce dominated – 82 to 89%

These results are consistent with those general assumptions made in previous planning terms about the relative success rates of proposed treatments.

For those sites where Natural Regeneration was prescribed (10,405 ha analyzed by SEM tool), the documented trend in all cases was that harvested areas regenerated to a greater diversity of forest units than anticipated. Current wood supply assumptions reflect this trend.

A review of the overall trend of changes in the total treated area versus the newly created area for each forest unit, specifically for the area included in the analysis, reveals a typical shift related to aggressive conversion strategies. There has been a reduction in mixedwood and hardwood dominated forest unit area (9,853 ha to 5,490 ha) and an increase in pure conifer and conifer dominated forest unit area (23,822 ha to 27,505 ha). Also, there is a documented increase in area of white and red pine dominated forest units (PRWST and PRWSH). The increase is from 307 ha of treated or original area to 1139 ha of newly created area and reflects the previous TMP and FMP strategies to increase these specific forest unit areas.

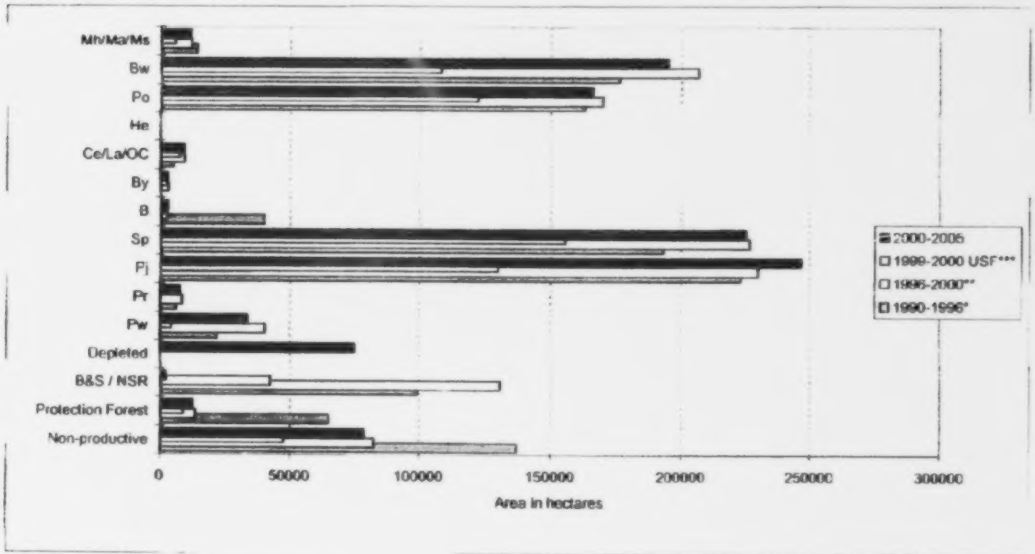
For this table, an estimate of 2% of the harvested area is shown as roads and landings. This is consistent with modeling done in the previous and current FMP's.

TABLES

2005 Independent Forest Audit
Table 1 - Summary of Total Area Under Management

Past and Current Plans - Crown Managed
MU: SPANISH FOREST

		Area in hectares			
		Past Plans			Current
Land Type	Plan Term	1990-1996*	1996-2000**	1999-2000 USF***	2000-2005
Non-Forested					
Other Land		4,430	5,889	2,442	4,016
Forested					
Non-productive		137,319	82,512	47,723	78,831
Productive					
Protection		65,109	13,228	8,739	12,308
Production Forest					
B&S / NSR		99,048	130,737	42,335	2,153
Depleted		-	-	-	75,100
Forest Stands by Working Group					
Pw		21,555	40,502	4,291	33,038
Pr		6,036	8,443	131	7,525
Pj		223,056	229,691	130,068	246,817
Sp		193,055	226,582	155,660	225,160
B		40,082	2,452	1,275	2,802
By		-	3,106	2,488	2,845
Ce / La / OC		4,912	9,203	7,523	9,016
He		-	-	-	-
Po		163,002	169,970	122,391	166,046
Bw		176,133	206,784	108,220	195,171
Mh/Ma/Ms		13,735	11,808	5,430	11,406
Total Production Forest		940,614	1,039,078	579,812	977,679
Total Forested Land		1,143,042	1,134,818	636,274	1,068,818



General Source - FMP-1 and FMP-2 for 2000-2005 Plan Term

* 1990-1996 Figures include both Lower and Upper Spanish Forest (Source 2000 IFA Manager's Trend Report)

** 1996-2000 Figures include both Lower and Upper Spanish Forest (Source 2000 IFA Manager's Trend Report)

*** 1999-2000 USF was a one year contingency plan (Source 2000 IFA Manager's Trend Report)

2005 Independent Forest Audit - Spanish Forest

Table 2 - DESCRIPTION OF FOREST UNITS

1990-1996 TMP LSF (Source 2000 IFA Manager's Trend Report)

Forest Unit		Forest Type	Main orking Gro	Site Type(s)	Silvicultura System	FRI Parameters & Criteria	Additional Information
Code	**Name**						
PJ	Jack Pine	Conifer	Pj		Clearcut	WG=Pj	Avg. Pj7Sp1Po1Bw1
SP	Spruce	Conifer	Sb, Sw		Clearcut	WG=Sb or WG=Sw	Avg. Sp8Pj1Bw1
PR	Red Pine	Conifer	Pr		Clearcut	WG=Pr	Avg. Pr5Pw2Bw1Sp1Po1
PW	White Pine	Conifer	Pw		Clearcut	WG=Pw	Avg. Pw4Bw2Sp1Pr1Po1Oh1
BF	Balsam Fir	Conifer	Bf		Clearcut	WG=Bf	Avg. Bf5Sp3Bw2
OC	Other Conifer	Conifer	Ce, La		Clearcut	WG=Ce or WG=La	Avg. Oc7Sp3
PO	Poplar	Intolerant Hardwood	Po		Clearcut	WG=Po	Avg. Po6Bw2Sp1Pj1
BW	White Birch	Intolerant Hardwood	Bw		Clearcut	WG=Bw	Avg. Bw5Sp1Po1Oh1Bf1Pj1
OH	Other Hardwood	Tolerant Hardwood	Ms, Mh, By		Clearcut	WG=Ms or WG=Mh or WG=By	Avg. Oh6Bw1Sp1Po1Bf1

1990-1996 TMP USF (Source 2000 IFA Manager's Trend Report)

Forest Unit		Forest Type	Main orking Gro	Site Type(s)	Silvicultura System	FRI Parameters & Criteria	Additional Information
Code	**Name**						
PJ	Jack Pine	Conifer	Pj		Clearcut	WG=Pj	Avg. Pj7Sp1Po1Bw1
SP	Spruce	Conifer	Sb, Sw		Clearcut	WG=Sb or WG=Sw	Avg. Sp8Pj1Bw1
PR	Red Pine	Conifer	Pr		Clearcut	WG=Pr	Avg. Pr5Pw2Bw1Sp1Po1
PW	White Pine	Conifer	Pw		Clearcut	WG=Pw	Avg. Pw4Bw2Sp1Pr1Po1Oh1
BF	Balsam Fir	Conifer	Bf		Clearcut	WG=Bf	Avg. Bf5Sp3Bw2
OC	Other Conifer	Conifer	Ce, La		Clearcut	WG=Ce or WG=La	Avg. Oc7Sp3
PO	Poplar	Intolerant Hardwood	Po		Clearcut	WG=Po	Avg. Po6Bw2Sp1Pj1
BW	White Birch	Intolerant Hardwood	Bw		Clearcut	WG=Bw	Avg. Bw5Sp1Po1Oh1Bf1Pj1
OH	Other Hardwood	Tolerant Hardwood	Ms, Mh, By		Clearcut	WG=Ms or WG=Mh or WG=By	Avg. Oh6Bw1Sp1Po1Bf1

2005 Independent Forest Audit - Spanish Forest

Table 2 - DESCRIPTION OF FOREST UNITS

1996-2000 FMP LSF (Source 2000 IFA Manager's Trend Report)

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
PJ	Jack Pine	Conifer	Pj		Clearcut	Pj>=70%	Avg. Pj8Po1Sb1
SB	Black Spruce	Conifer	Sb		Clearcut	Sb>=70%	Avg. Sb8Bw1Pj1
PO	Poplar	Intolerant Hardwood	Po		Clearcut	Po>=70%	Avg. Po7Bw1Sb1Pj1
BW	White Birch	Intolerant Hardwood	Bw		Clearcut	Bw>=70%	Avg. Bw8Po1Sb1
PR	Red Pine	Conifer	Pr		Clearcut	WG=Pr	Avg. Pr5Pw2Bw1Sb1Po1
P1	White Pine - Shelterwood	Conifer	Pw		Shelterwood	WG=Pw and Pw+Pr+Sw BA>=12m2/ha	Avg. Pw5Bw2Pr1Sb1Po1
P2	White Pine - Seedtree	Conifer	Pw		Clearcut	WG=Pw and Pw+Pr+Sw BA<12m2/ha	Avg. Pw4Bw2Sb1Po1Ms1Pj1
OC	Other Conifer	Conifer	Ce, La		Clearcut	WG=Ce or La	Ce5Sb2La2Bw1
OH	Other Hardwood	Tolerant Hardwood	Ms, Mh, By		Shelterwood	WG=Ms or Mh or By	Avg. Mh2Bw2Ms2By2Sw1Sb1
MC	Mixed Conifer	Conifer	Pj, Sb		Clearcut	Pj+Sb+Sw+Bf+Pw+ Pr >=70%	Avg. Sb4Pj4Bw1Po1
MH	Mixed Hardwood	Intolerant Hardwood	Po, Bw		Clearcut	Po+Bw+By+Ms+Mh>=70%	Avg. Bw4Po3Sb1Pj1Ms1
MW	Mixed Wood	Mixed Wood	Po, Bw, Sb, Pj		Clearcut	60:40 to 40:60 ratio of conifer to hardwood	Avg. Bw3Po2Sb2Pj2Sw1

1996-2000 FMP USF (Source 2000 IFA Manager's Trend Report)

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
PJ	Jack Pine	Conifer	Pj		Clearcut	Pj>=70%	Avg. Pj8Po1Sb1
SB	Black Spruce	Conifer	Sb		Clearcut	Sb>=70%	Avg. Sb8Bw1Pj1
PO	Poplar	Intolerant Hardwood	Po		Clearcut	Po>=70%	Avg. Po7Bw1Sb1Pj1
BW	White Birch	Intolerant Hardwood	Bw		Clearcut	Bw>=70%	Avg. Bw8Po1Sb1
PR	Red Pine	Conifer	Pr		Clearcut	WG=Pr	Avg. Pr5Pw2Bw1Sb1Po1
P1	White Pine - Shelterwood	Conifer	Pw		Shelterwood	WG=Pw and Pw+Pr+Sw BA>=12m2/ha	Avg. Pw5Bw2Pr1Sb1Po1
P2	White Pine - Seedtree	Conifer	Pw		Clearcut	WG=Pw and Pw+Pr+Sw BA<12m2/ha	Avg. Pw4Bw2Sb1Po1Ms1Pj1
OC	Other Conifer	Conifer	Ce, La		Clearcut	WG=Ce or La	Ce5Sb2La2Bw1
OH	Other Hardwood	Tolerant Hardwood	Ms, Mh, By		Shelterwood	WG=Ms or Mh or By	Avg. Mh2Bw2Ms2By2Sw1Sb1
MC	Mixed Conifer	Conifer	Pj, Sb		Clearcut	Pj+Sb+Sw+Bf+Pw+ Pr >=70%	Avg. Sb4Pj4Bw1Po1
MH	Mixed Hardwood	Intolerant Hardwood	Po, Bw		Clearcut	Po+Bw+By+Ms+Mh>=70%	Avg. Bw4Po3Sb1Pj1Ms1
MW	Mixed Wood	Mixed Wood	Po, Bw, Sb, Pj		Clearcut	60:40 to 40:60 ratio of conifer to hardwood	Avg. Bw3Po2Sb2Pj2Sw1

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Table 2 - DESCRIPTION OF FOREST UNITS

1999-2000 USF Contingency FMP (Source 2000 IFA Manager's Trend Report)

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
PJPUR	Jack Pine	Conifer	Pj		Clearcut	PJ >= .7	Avg. Pj8Po1Sb1
SBLOW	Black Spruce	Conifer	Sb		Clearcut	SB >= .9	Avg. Sb8Ce1La1
MHPO	Mixed Hardwood - Poplar	Intolerant Hardwood	Po		Clearcut	PO > BW AND PO + BW + MS + MH + YB + AB + QR >= .7	Avg. Po6Bw2Sb1Pj1
MHBW	Mixed Hardwood - White Birch	Intolerant Hardwood	Bw		Clearcut	BW > PO AND PO + BW + MS + MH + YB + AB + QR >= .7	Avg. Bw5Po2Sb1Ms1Sw1
PRPUR	Red Pine	Conifer	Pr		Clearcut	WG = 'Pr' AND PW <= .2	Avg. Pr5Bw2Po1Sw1Sb1
PWRSH	White/Red Pine - Shelterwood	Conifer	Pw		Shelterwood	(WG = 'Pw' AND PW + PR + SW >=.5 AND STK >=.6) or (WG = 'Pr' AND PW > .2 AND STK >= .6) or (WG = 'Sw' AND PW > .2 AND STK >= .6)	Avg. Pw4Bw1Sw1Po1Pr1Ms1Bf1
PWRST	White/Red Pine - Seedtree	Conifer	Pw		Clearcut	(WG = 'Pw' AND PW + PR + SW < .5) or (WG = 'Pw' AND STK < .6) or (WG = 'Pr' AND PW > .2 AND STK < .6) or (WG = 'Sw' AND PW > .2 AND STK < .6)	Avg. Pw3Bw3Sb2Po1Sw1
OCON	Other Conifer	Conifer	Sb, Ce, La		Clearcut	CE + LA >= .3 AND SB <= .5 AND SW <= .5 AND PJ < .4 AND PO < .4	Avg. Sb3Ce3La2Bw1Bf1
HSE	Hardwood Selection	Tolerant Hardwood	Ms, Mh, By		Selection	MH >= .4 AND MH > YB AND WG <> 'Pw'	Avg. Mh4Bw2Sw1By1Sb1Ms1
HSH	Hardwood Shelterwood				Shelterwood	MS + YB + QR + MH > = .3 AND MS + YB+ QR + MH + PW >= .4 AND WG <> 'Pw'	Avg. Bw3Ms2Mh1Sw1By1Sb1Pw1
MXCON	Mixed Conifer	Conifer	Pj, Sb		Clearcut	PJ + SB + SW + BF + PW + PR + CE + LA >= .7	Avg. Sb4Pj3Bw1Po1Bf1
MXWD	Mixed Wood	Mixed Wood	Po, Bw, Sb, Pj		Clearcut	60:40 to 40:60 ratio of conifer to hardwood	Avg. Bw3Po2Sb2Pj1Sw1Bf1

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Table 2 - DESCRIPTION OF FOREST UNITS

2000-2005 FMP (Source: 2000-2005 FMP-8)

Forest Unit		Forest Type	Main Working Group	Site Type(s)*	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
HSE	Tolerant Hardwood Selection	Tolerant Hardwood	Hard Maple	16, 15	Selection	6. MH >= .4 AND MH > YB AND WG <> 'Pw'	Ave. Site Class = 2; Ave. Stocking = 0.9; Ave. Species Composition = Mh5Bw2Bv1Sw1Ms1
HSH	Tolerant Hardwood Shelterwood	Tolerant Hardwood	White Birch	15.16	Shelterwood	7-MS + -YB + QR + MH > = .3 AND MS + YB+ QR + MH + PW >= .4 AND WG o 'Pw'	Ave. Site Class = 2; Ave. Stocking = 0.9; Ave. Species Composition = RW3MS7MM Rv1 Swi Sb 1 Pw1
MHBW	Mixed Hardwood - White Birch	Intolerant Hardwood	White Birch	6a, 6b, 6c, 15, 16, 1, 3a, 3b, 7a, 7b	Clearcut	8. BW > PO AND PO + BW + MS + MH + YB + AB + QR >= .7	Ave. Site Class = 2-3; Ave. Stocking = 0.9; Ave. Species Composition = Bw5Po2Sb1Ms1Pi1
MHPO	Mixed Hardwood - Poplar	Intolerant Hardwood	Poplar	6a, 6b, 6c, 3a, 3b, 10, 15, 1,7a, 7b, 16	Clearcut	9. PO > BW AND PO + BW + MS + MH + YB + AB + QR >= .7	Ave. Site Class = 2-3; Ave. Stocking = 0.8; Ave. Species Composition = Pc6Bw2Sb1Pi1
MXCON r	Mixed Conifer	Conifer	Jack Pine	3a, 3b, 4, 6a, 6b, 6c, 5a, 5b, 9, 8, 11, 1	Clearcut	11. PJ + SB + SW+ BF + PW+ PR + CE+ LA>= .7	Ave. Site Class = 1-2; Ave. Stocking = 0.7; Ave. Species Composition = Sb4Pj3Bw1Po1Bf1
MXWD	Mixed wood	Mixedwood	White Birch	6a, 6b, 6c, 3a, 3b, 15, 1, 16	Clearcut	12. All else	Ave. Site Class = 2; Ave. Stocking = 0.8; Ave. Species Composition = Bw3Po2Sb2Pl2Sw1
OCON	Other Conifer	Conifer	Cedar	13, 12, 6a, 6b, 6c, 9, 16, 14, 1, 3	Clearcut	10. CE + LA >= .3 AND SB <= .5 AND SW <= .5 ANDPJ< 4ANDPO<.4	Ave. Site Class = 2; Ave. Stocking = 0.6; Ave. Species Composition = CeSSbSieJBwlRfi
PJPUR	Jack Pine Pure	Conifer	Jack Pine	4, 3a, 3b, 2a, 2b, 1	Clearcut	1.PJ>=.7	Ave. Site Class = 2; Ave. Stocking = 0.9; Ave. Species Composition = Pj8Sb1Po1
PRPUR	Red Pine Pure	Conifer	Red Pine	3a, 3b, 2a, 2b, 15	Clearcut	3. WG = 'Pr' AND PW <= .2	Ave. Site Class = 2; Ave. Stocking = 0.8; Ave. Species Composition = Pr"5Pw1Rw1Po1Pi1Sb1
PWRSH	White Pine/Red Pine Shelterwood	Conifer	White Pine	3a, 3b, 6a, 6b, 6c, 15, 16	Shelterwood	4. (WG = 'Pw' AND PW + PR + SW >= .5 AND STK >=.6) or (WG = 'Pr' AND PW > .2 AND STK >= .6) or (WG = 'Sw' AND PW > .2 AND STK >= .6)	Ave. Site Class = 2; Ave. Stocking = 0.8; Ave. Species Composition = Pw4Bw2Pr1Po1Sb1Sw1
PWRST.	White Pine/Red Pine Seetree	Conifer	White Pine	6a, 6b, 6c, 3a, 3b, 15, 16	Clearcut	5. (WG = 'Pw' AND PW + PR + SW < .5) or (WG = 'Pw' AND STK < .6p> or (WG = 'Pr' AND PW > .2 AND STK < .6) or (WG = 'Sw' AND PW > .2 AND STK < .6)	Ave. Site Class = 2; Ave. Stocking = 0.7; Ave. Species Composition = Pw3Bw2Po1Sb1Ms1Pj1Sw1
SBLOW	Black Spruce Lowland	Conifer	Black Spruce	11,8, 13, 12,5a, 5b, 14	Clearcut	2(SBJ-=.9> or (SB > .5 AND SB + CE +,LA^ 8 AND PJ + PO + PW + PR + MH < .2)	Ave. Site Class = 1-2; Ave. Stocking = 0.6; Ave. Species Composition = Sb8Ce1La1

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Table 3 - Summary of Planned & Actual Harvest Volumes

MU: Spanish Forest

Average Planned Annual Harvest Volumes

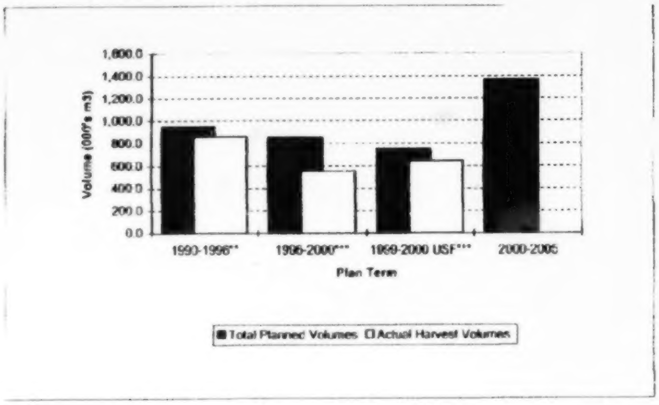
Volumes are Annualized for the indicated 5 year period

	Volume in cubic metres			
	Past Plans			Current
Species	1990-1996*	1996-2000**	1999-2000 USF***	2000-2005
Jack Pine	548,100	408,000	263,706	412,719.6
Spruce	282,620	223,500	244,888	404,433.6
Balsam Fir	-	13,013	13,013	20,675.6
Cedar	-	-		-
Larch	-	-		-
White Pine	33,620	3,200	513	19,280.0
Red Pine	12,720	200	320	15,637.0
Poplar	71,400	195,200	226,900	353,292.2
White Birch	-	8,600		135,619.2
Hard Maple	-	-		3,712.2
Lowland Hardwood	-	-		-
Upland Hardwood	-	-		3,731.8
Total Planned Volumes	948,460.0	851,713.0	749,340.0	1,369,101.2

Actual Harvest Volumes

Volumes are Annualized for the indicated 5 year period

	Volume in cubic metres			
	Past Plans			Current
Species	1990-1996*	1996-2000**	1999-2000 USF***	2000-2005
Jack Pine	561,847.4	322,609.4	346,525.0	
Spruce	226,327.8	137,337.6	180,974.0	
Balsam Fir	35.2	6,015.6	8,806.0	
Cedar	2.0	7.8	217.0	
Larch	-	-		
White Pine	21,330.4	11,792.8	149.0	
Red Pine	15,449.6	11,963.4		
Poplar	28,437.4	61,779.8	106,792.0	
White Birch	2,259.2	1,166.0	191.0	
Hard Maple	1,282.8	366.0	7.0	
Lowland Hardwood	-	-		
Upland Hardwood	-	-		
Total Actual Volumes	856,971.8	553,038.4	643,661.0	



Source: 2000 IFA Trend Analysis

planned: TMPM Table 4.18.1, FMPM Table FMP-23

actual: TMPM Table 4.3.1, FMPM RPFO-4, annual reports

* 1990-1996 Figures include both Lower and Upper Spanish Forest TMP's

** 1996-2000 Figures include both Lower and Upper Spanish Forest FMP's

*** 1999-2000 USF Contingency Plan figures were used as planned overlaps with 1996-2000 FMP

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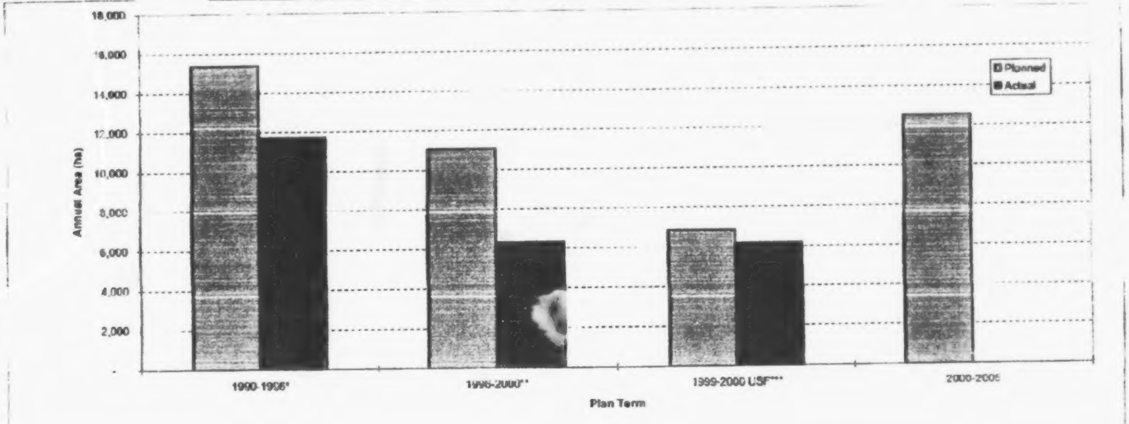
Table 4 - Summary of Planned & Actual Harvest Area

Past and Current Plans
MU: Spanish Forest

Area is Annualized for the indicated 5 year period

	Planned Annual Harvest Area				Actual Harvest Area			
	Area in hectares				*Area in hectares*			
	Past Plans			Current	Past Plans			Current
Forest Unit	1990-1996*	1996-2000**	1999-2000 USF***	2000-2005	1990-1996*	1996-2000**	1999-2000 USF**	2000-2005
PJPUR Jack Pine	6,651	2,014	527	999	5,190	1,534	403	
SBLOW Black Spruce Lowland	2,975	687	715	681	2,603	326	678	
MHPO Mixed Hardwood Poplar	3,031	126	1,140	1,994	1,795	64	1,318	
MHBW Mixed Hardwood Birch	1,906	54	263	388	1,577	15	216	
MH Mixed Hardwood	-	1,506	-	-	-	849	-	
PRPUR Red Pine	154	94	-	90	74	60	-	
PWRSH White Pine Shelterwood	-	510	6	525	-	251	-	
PWRST White Pine Seedtree	339	174	4	79	269	96	4	
OCON Other Conifer	19	18	-	139	21	13	1	
HSE Tolerant Hardwood Selection	-	-	-	125	-	-	-	
HSH Tolerant Hardwood Shelterwood	73	49	6	192	40	23	1	
MXCON Mixed Conifer	-	3,263	2,246	3,985	-	1,715	1,956	
BF Balsam Fir	186	-	-	-	168	-	-	
MXWD Mixed Wood	-	2,567	1,930	3,327	-	1,353	1,602	
Total Area:	15,333	11,062	6,839	12,523	11,738	6,308	6,179	

Planned vs. Actual Harvest Area



* 1990-1996 Figures include both Lower and Upper Spanish Forest (Source 2000 IFA Manager's Trend Report)

** 1996-2000 Figures include both Lower and Upper Spanish Forest (Source 2000 IFA Manager's Trend Report and RPFO-2)

*** 1999-2000 USF was a one year contingency plan (Source 2000 IFA Manager's Trend Report and RPFO-2)

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Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

MU: Spanish Forest

Plan Term: April 1, 1990 to March 31, 1996

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(1000's m³)	(ha)	(1000's m³)		(ha)	(1000's m³)
PJ	1-20	0	0	0	0		72786	0
	21-40	0	0	0	0		10611	0
	41-60	0	0	0	0		22011	0
	61-80	0	0	0	0		60452	0
	81-100	0	0	0	0		73169	0
	101-120	0	0	0	0		18878	0
	121+	0	0	0	0		7532	0
Forest Unit Subtotal		0	0	0	0		265366	0
PR	1-20	0	0	0	0		657	0
	21-40	0	0	0	0		39	0
	41-60	0	0	0	0		6	0
	61-80	0	0	0	0		180	0
	81-100	0	0	0	0		1413	0
	101-120	0	0	0	0		3375	0
	121+	0	0	0	0		984	0
Forest Unit Subtotal		0	0	0	0		6654	0
PW	1-20	0	0	0	0		2775	0
	21-40	0	0	0	0		150	0
	41-60	0	0	0	0		28	0
	61-80	0	0	0	0		336	0
	81-100	0	0	0	0		1742	0
	101-120	0	0	0	0		4734	0
	121+	0	0	0	0		14423	0
Forest Unit Subtotal		0	0	0	0		24188	0
SP	1-20	0	0	0	0		26431	0
	21-40	0	0	0	0		5072	0
	41-60	0	0	0	0		15665	0
	61-80	0	0	0	0		32577	0
	81-100	0	0	0	0		65175	0
	101-120	0	0	0	0		30766	0
	121+	0	0	0	0		40134	0
Forest Unit Subtotal		0	0	0	0		214820	0
B	1-20	0	0	0	0		3324	0
	21-40	0	0	0	0		4388	0
	41-60	0	0	0	0		24751	0
	61-80	0	0	0	0		9821	0
	81-100	0	0	0	0		374	0
	101-120	0	0	0	0		6	0
	121+	0	0	0	0		0	0
Forest Unit Subtotal		0	0	0	0		42664	0
OC	1-20	0	0	0	0		300	0
	21-40	0	0	0	0		27	0
	41-60	0	0	0	0		178	0
	61-80	0	0	0	0		351	0
	81-100	0	0	0	0		1508	0
	101-120	0	0	0	0		1467	0
	121+	0	0	0	0		1381	0
Forest Unit Subtotal		0	0	0	0		5212	0
PO	1-20	0	0	0	0		23669	0
	21-40	0	0	0	0		2184	0
	41-60	0	0	0	0		11607	0
	61-80	0	0	0	0		46587	0
	81-100	0	0	0	0		70026	0
	101-120	0	0	0	0		24080	0
	121+	0	0	0	0		4127	0
Forest Unit Subtotal		0	0	0	0		182279	0
BW	1-20	0	0	0	0		9675	0
	21-40	0	0	0	0		4677	0
	41-60	0	0	0	0		35879	0
	61-80	0	0	0	0		67501	0
	81-100	0	0	0	0		50757	0
	101-120	0	0	0	0		16619	0
	121+	0	0	0	0		240	0
Forest Unit Subtotal		0	0	0	0		185348	0
OH	1-20	0	0	0	0		364	0
	21-40	0	0	0	0		48	0
	41-60	0	0	0	0		408	0
	61-80	0	0	0	0		914	0
	81-100	0	0	0	0		1315	0
	101-120	0	0	0	0		4002	0
	121+	0	0	0	0		7018	0
Forest Unit Subtotal		0	0	0	0		14069	0
Total		0	0	0	0		940614	0

Source: 2000 IFA Manager's Trend Report (Figures include both USF and LSF)

2001 Independent Forest Audit
Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
MU: Spanish Forest
Plan Term: April 1, 1996 to March 31, 2001

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(1000's m³)	(ha)	(1000's m³)		(ha)	(1000's m³)
PJ	1-20	[illegible]	0	[illegible]	0		[illegible]	0
	21-40	0	0	378	0		[illegible]	0
	41-60	90	0	[illegible]	0		[illegible]	0
	61-80	150	0	3647	0		[illegible]	0
	81-100	400	0	[illegible]	0		[illegible]	0
	101-120	33	0	301	0		2374	0
	121+	0	0	28	0		200	0
Forest Unit Subtotal		[illegible]	0	17310	0		151280	0
SB	1-20	0	0	2750	0		21578	0
	21-40	0	0	38	0		772	0
	41-60	0	0	480	0		4780	0
	61-80	283	0	2084	0		18080	0
	81-100	335	0	4713	0		38558	0
	101-120	251	0	1284	0		8804	0
	121+	19	0	118	0		1322	0
Forest Unit Subtotal		894	0	11445	0		95343	0
PO	1-20	115	0	2178	0		15727	0
	21-40	91	0	43	0		1127	0
	41-60	0	0	57	0		801	0
	61-80	20	0	971	0		5782	0
	81-100	107	0	1737	0		11580	0
	101-120	0	0	94	0		487	0
	121+	0	0	0	0		0	0
Forest Unit Subtotal		382	0	5082	0		35373	0
BW	1-20	24	0	2086	0		13428	0
	21-40	0	0	14	0		183	0
	41-60	0	0	108	0		880	0
	61-80	160	0	831	0		3878	0
	81-100	27	0	421	0		2780	0
	101-120	0	0	4	0		143	0
	121+	0	0	0	0		0	0
Forest Unit Subtotal		210	0	3475	0		[illegible]	0
P1	1-20	0	0	0	0		0	0
	21-40	0	0	0	0		0	0
	41-60	0	0	[illegible]	0		0	0
	61-80	0	0	180	0		792	0
	81-100	0	0	783	0		5875	0
	101-120	0	0	1434	0		10322	0
	121+	10	0	1583	0		9250	0
Forest Unit Subtotal		10	0	3874	0		26281	0
P2	1-20	0	0	465	0		3192	0
	21-40	0	0	0	0		41	0
	41-60	0	0	75	0		190	0
	61-80	0	0	140	0		943	0
	81-100	0	0	288	0		1801	0
	101-120	0	0	357	0		3290	0
	121+	0	0	[illegible]	0		3622	0
Forest Unit Subtotal		0	0	1835	0		12080	0
PR	1-20	0	0	171	0		864	0
	21-40	0	0	0	0		0	0
	41-60	0	0	10	0		20	0
	61-80	0	0	80	0		280	0
	81-100	0	0	380	0		2158	0
	101-120	0	0	484	0		3086	0
	121+	0	0	488	0		1536	0
Forest Unit Subtotal		0	0	1320	0		7863	0
OC	1-20	0	0	138	0		420	0
	21-40	0	0	1	0		21	0
	41-60	0	0	36	0		180	0
	61-80	0	0	143	0		823	0
	81-100	175	0	580	0		4313	0
	101-120	105	0	286	0		2604	0
	121+	0	0	195	0		588	0
Forest Unit Subtotal		284	0	1382	0		8388	0
OH	1-20	0	0	86	0		762	0
	21-40	0	0	13	0		181	0
	41-60	0	0	180	0		1883	0
	61-80	29	0	737	0		2732	0
	81-100	38	0	382	0		5829	0
	101-120	83	0	148	0		3881	0
	121+	61	0	88	0		830	0
Forest Unit Subtotal		[illegible]	0	1901	0		14382	0
MC	1-20	5	0	373	0		4046	0
	21-40	0	0	1012	0		11022	0
	41-60	120	0	2719	0		10280	0
	61-80	336	0	7881	0		57684	0
	81-100	1087	0	12810	0		77783	0
	101-120	431	0	2884	0		14368	0
	121+	92	0	624	0		4041	0
Forest Unit Subtotal		1991	0	28253	0		179441	0
MH	1-20	0	0	92	0		9440	0
	21-40	0	0	380	0		9885	0
	41-60	324	0	1414	0		11913	0
	61-80	1880	0	10833	0		74221	0
	81-100	1980	0	10823	0		68724	0
	101-120	101	0	577	0		8325	0
	121+	0	0	54	0		425	0
Forest Unit Subtotal		4027	0	23885	0		184942	0
MW	1-20	0	0	571	0		7870	0
	21-40	35	0	1017	0		10880	0
	41-60	488	0	2833	0		28895	0
	61-80	1042	0	10847	0		67847	0
	81-100	2124	0	13651	0		73887	0
	101-120	140	0	2080	0		11766	0
	121+	20	0	288	0		745	0
Forest Unit Subtotal		4880	0	31198	0		181021	0
	Total	13228	0	130289	0		988788	0

Source: 2000 IFA Manager's Trend Report (Figures include both USF and LSF)

2003 Independent Forest Audit
Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
MU: Upper Spanish Forest (USF)
Plan Term: April 1, 1998 to March 31, 2008

Forest Unit	Age Class	Protection Forest (ha)	Protection Forest (1000's m³)	Production Forest: Unavailable (ha)	Unavailable (1000's m³)	Stage of Management	Available (ha)	Available (1000's m³)
HSE	All Ages	66		90			1614	
Forest Unit Subtotal		66	5	90	13		1614	221
HSH	1-20			6		All	25	
	21-40			5		All	75	
	41-60			5		All	85	5
	61-80			86	7	All	1364	113
	81-100	37	4	271	32	All	4316	386
	101-120			120	18	All	1918	258
	121+	38	7	43	5	All	690	88
Forest Unit Subtotal		88	11	526	60		8473	987
MHBW	1-20	35		92			5484	
	21-40			10			146	3
	41-60	56	4	501	36		4156	288
	61-80	181	20	2280	243		17891	1832
	81-100	501	60	3697	402		27882	3487
	101-120	30	4	281	36		2184	274
	121+			14	1		168	6
Forest Unit Subtotal		802	94	6882	777		57974	5871
MHPO	1-20	74		469			11850	
	21-40	7		281	5		1029	46
	41-60	44	4	363	25		2813	312
	61-80	56	7	1188	144		8792	1058
	81-100	884	120	6111	860		45230	6434
	101-120	85	12	884	125		5850	779
	121+			14	1		165	6
Forest Unit Subtotal		1157	149	9192	1150		76487	8636
MXCON	1-20	45		482			3448	
	21-40			880	23		6253	147
	41-60	28	2	1875	73		8872	474
	61-80	176	18	2784	330		17808	1676
	81-100	543	71	8326	1087		53686	7046
	101-120	287	35	1787	202		11846	1914
	121+	87	5	193	17		1256	113
Forest Unit Subtotal		1116	136	16476	1729		101127	11270
MXMPO	1-20			1083			8751	
	21-40	32	1	1182	22		7316	143
	41-60	241	14	1880	60		10546	827
	61-80	2209	217	3804	380		24508	2413
	81-100	1165	147	9641	1063		54806	6752
	101-120	157	19	1728	250		10888	1327
	121+	26	1	40	6		317	23
Forest Unit Subtotal		3871	398	18147	1777		115254	11386
OCON	1-20			6			121	
	21-40			16			93	
	41-60			66			394	3
	61-80	22	1	171	4		1033	77
	81-100	129	8	718	44		4335	267
	101-120	85	6	790	50		4282	380
	121+	88	6	185	7		632	41
Forest Unit Subtotal		324	21	1782	107		10860	648
PJPUR	1-20	13		2808	1		44670	22
	21-40			833	32		8528	324
	41-60			352	37		3582	382
	61-80	4	1	845	87		8881	980
	81-100	240	40	1900	251		15447	2572
	101-120	35	6	110	17		1125	174
	121+			2			25	2
Forest Unit Subtotal		292	46	5058	435		80238	4456
PRPLR	1-20						4	
	21-40							
	41-60			4	1		21	4
	61-80							
	81-100			10	4		81	17
	101-120			1			5	1
	121+			4	1		19	5
Forest Unit Subtotal				22	6		130	27
PWRSH	1-20							
	21-40							
	41-60							
	61-80			12	1	All	84	9
	81-100			7	1	All	46	7
	101-120			16	2	All	103	17
	121+			185	31	All	1338	211
Forest Unit Subtotal				220	35		1572	244
PWRST	1-20						65	
	21-40							
	41-60			3			23	1
	61-80			16	1		126	12
	81-100			24	3		160	24
	101-120			65	9		482	65
	121+			175	24		1380	180
Forest Unit Subtotal				277	37		2281	284
SBLOW	1-20	2		6			9867	
	21-40			20			242	2
	41-60			146	5		12770	44
	61-80	252	16	881	65		7841	576
	81-100	344	38	3297	314		28238	2767
	101-120	387	40	1288	126		10768	1186
	121+	15	2	120	11		1051	180
Forest Unit Subtotal		1004	96	5621	521		58366	4856
Total		8739	956	64410	6650		515482	48426

Source: 2000 IFA Manger's Trend Report (USF only)

2006 Independent Forest Audit
Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-4)
MU: Spanish Forest
Plan Term: April 1, 2000 to March 31, 2005

Forest Unit	Age Class	Protection Forest (ha)	Protection Forest (m3)	Production Forest: Unavailable (ha)	Unavailable (m3)	Stage of Management	Available (ha)	Available (m3)
HDE	1-20			3			18	
	21-40							
	41-60			8	701		140	8,480
	61-80			40	5,013		711	82,218
	81-100			97	13,384		1,477	216,480
	101-120	71		38	5,380		987	127,249
	121+			7	1,043		190	28,798
Forest Unit Subtotal		71	0	194	25,401		3,446	437,182
HDI	1-20			9		Seed Cut	175	
	21-40			25	674	Seed Cut	145	4,428
	41-60			127	10,763	Seed Cut	1,590	120,455
	61-80			230	20,809	Seed Cut	2,894	234,576
	81-100	33		471	47,485	Seed Cut	5,803	681,900
	101-120			135	12,080	Seed Cut	2,380	281,364
	121+	54		117	11,380	Seed Cut	887	89,156
Forest Unit Subtotal		87	0	1,089	105,399		13,849	1,446,973
MHDW	1-20	39		311			5,330	440
	21-40			32	780		318	11,573
	41-60	57		818	66,805		8,436	359,899
	61-80	457		5,540	579,294		41,498	4,395,287
	81-100	569		5,299	604,330		38,842	4,546,230
	101-120			338	38,967		3,364	352,872
	121+			24	1,882		131	8,129
Forest Unit Subtotal		1122	0	12,361	1,296,521		98,021	9,744,511
MXPC	1-20	142		893	1,185		11,471	14,121
	21-40	7		161	5,088		2,298	97,387
	41-60	89		476	42,975		3,784	381,180
	61-80	583		3,842	427,880		21,741	2,539,829
	81-100	1611		8,689	1,161,889		52,849	7,046,581
	101-120	118		1,214	146,523		6,549	751,881
	121+			24	1,416		239	15,870
Forest Unit Subtotal		2500	0	14,981	1,786,528		98,881	10,842,287
MXCON	1-20			1,320	428		20,329	7,470
	21-40			1,063	46,885		11,844	387,153
	41-60	93		2,700	227,342		18,497	1,337,080
	61-80	262		8,682	780,858		42,139	4,981,048
	81-100	657		16,236	2,270,804		81,780	11,146,576
	101-120	286		4,823	580,371		22,714	2,740,320
	121+	12		1,564	86,747		5,037	387,128
Forest Unit Subtotal		1270	0	34,776	3,978,871		200,862	20,980,488
SBMXD	1-20			1,240	1,810		24,830	29,181
	21-40	39		914	20,012		10,880	332,343
	41-60	380		2,170	183,180		17,173	1,275,811
	61-80	3125		8,721	836,895		51,419	4,000,843
	81-100	1759		14,880	1,744,125		78,817	9,218,872
	101-120	280		3,387	349,840		18,828	1,770,820
	121+	20		317	15,807		886	48,183
Forest Unit Subtotal		5444	0	31,576	3,141,867		200,414	17,585,789
OCON	1-20			95			270	
	21-40			8	67		89	887
	41-60			92	2,330		351	13,880
	61-80	22		229	14,366		1,382	81,422
	81-100	95		809	71,867		5,298	480,184
	101-120	85		681	46,885		4,188	338,875
	121+	66		134	7,887		785	47,175
Forest Unit Subtotal		282	0	2,016	142,812		12,548	965,183
PJPUR	1-20	87		3,864	3,880		57,884	44,487
	21-40			567	36,552		11,758	930,225
	41-60	10		835	98,880		8,856	744,472
	61-80	89		3,880	585,888		34,487	3,848,187
	81-100	201		5,151	868,918		23,221	3,808,021
	101-120	60		680	103,837		2,489	356,823
	121+			88	8,782		275	27,533
Forest Unit Subtotal		545	0	14,106	1,660,865		120,984	9,482,590
PRPUR	1-20			20			475	
	21-40							
	41-60			21	3,420		87	11,889
	61-80			72	13,238		704	35,984
	81-100			252	56,434		1,344	288,580
	101-120			319	68,646		1,782	352,384
	121+			385	98,324		1,703	213,744
Forest Unit Subtotal		0	0	1,185	180,230		5,941	887,787
PWRSH	1-20			58		Preparatory cut	404	
	21-40			8	337	Preparatory cut	30	1,875
	41-60					Preparatory cut		
	61-80			71	9,803	Preparatory cut	820	63,302
	81-100			758	130,888	Prep. Seed. Removal cut	3,730	568,802
	101-120			1,485	272,840	Seed cut/ Removal cut	7,720	1,438,820
	121+	18		1,437	234,584	Seed cut/ Removal cut	7,495	1,228,820
Forest Unit Subtotal		18	0	3,734	657,278		20,140	3,301,819
PWRST	1-20			75			1,002	
	21-40							
	41-60			27	1,384		152	7,915
	61-80			128	11,875		730	64,878
	81-100			365	38,166		2,091	240,404
	101-120			835	71,888		3,132	382,771
	121+			740	68,870		3,785	346,517
Forest Unit Subtotal		0	0	1,900	190,284		11,380	1,036,761
SBLOW	1-20	2		447			4,579	30
	21-40			25	396		398	5,331
	41-60			287	13,386		1,080	109,780
	61-80	207		1,862	189,238		9,870	867,341
	81-100	345		4,070	432,880		32,941	3,421,710
	101-120	371		1,830	153,162		12,143	1,101,113
	121+	20		198	8,185		1,170	78,441
Forest Unit Subtotal		985	0	7,446	787,464		61,384	5,575,887
Total		12308	0	125,332	13,921,310		852,140	82,273,100

Source: Spanish 2000-2005 FMP-4

2005 Independent Forest Audit

Table 6 - SUMMARY REPORT OF RENEWAL, TENDING AND PROTECTION OPERATIONS

MU: Spanish Forest

	Area by Future Forest Unit (ha)							
	1990-1996*		1996-2000**		1999-2000 USF ***		2000-2005	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Renewal								
Regeneration								
Uneven-Aged Management								
Selection Cut - Harvest	0	0	0	0	0	0	637	0
Total Uneven-Aged Management	0	0	0	0	0	0	637	0
Even-Aged Management								
Natural Regeneration								
Clearcut	23,800	21,572	7,865	10,321	3,907	2,300	22,600	7,026
Strip Cut	0	0	0	0	0	0	0	0
Seed Tree Cut	500	392	622	627	4	3	385	0
Uniform Shelterwood Seed Cut	0	0	2,938	631	0	13	3,355	670
Subtotal Natural	24,300	21,964	11,425	11,579	3,911	2,316	26,340	7,696
Artificial Regeneration								
Planting	11,610	11,995	9,005	7,669	2,637	183	14,417	15,066
Shelterwood/Seed Tree Plant	0	0	0	232	0	0	0	0
Seeding direct	18,240	13,235	8,220	10,106	1,210	1,552	16,591	7,722
with site preparation	0	0	0	0	0	0	0	0
Scarification	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	
Subtotal Artificial	29,850	25,230	17,225	18,007	3,847	1,735	57,985	22,788
Total Even-Aged Management	54,150	47,194	28,650	29,586	7,758	4,051	84,325	30,484
Total Regeneration	54,150	47,194	28,650	29,586	7,758	4,051	84,962	30,484
Site Preparation								
Mechanical	28,090	25,082	18,875	18,960	5,700	1,610	32,559	21,099
Chemical	7,210	2,318	866	0	0	0	0	101
Prescribed Burn	0	91	244	0	0	0	0	0
Slash Pile Burning	0	0	0	0	0	0	0	194
Total Site Preparation	35,300	27,491	19,985	18,960	5,700	1,610	32,559	21,394
Tending								
Cleaning								
manual	0	151	0	384	103	0	300	0
chemical - ground	0	3	1,100	185	0	0	628	461
- aerial	11,690	15,969	11,650	12,124	2,431	2,071	25,000	25,373
mechanical	0	0	0	0	0	0	0	0
prescribed burn	0	0	0	0	0	0	0	0
Spacing, pre-commercial thinning, improvement cutting								
even-aged	0	156	1,000	924	177	235	2,000	1,650
uneven-aged	0	0	0	0	0	0	0	0
Cultivation								
Total Tending	11,690	16,279	13,750	13,617	2,711	2,306	27,928	27,484
Protection (Insect Pest Control)								
accelerated harvest								
salvage								
manual protection								
ground insecticide								
aerial insecticide								
Total Protection		0		0		0		0

* 1990-1996 Figures include both Lower and Upper Spanish Forest (Source 2000 IFA Manager's Trend Report)

** 1996-2000 Figures include both Lower and Upper Spanish Forest (Source 2000 IFA Manager's Trend Report and RPFO-7)

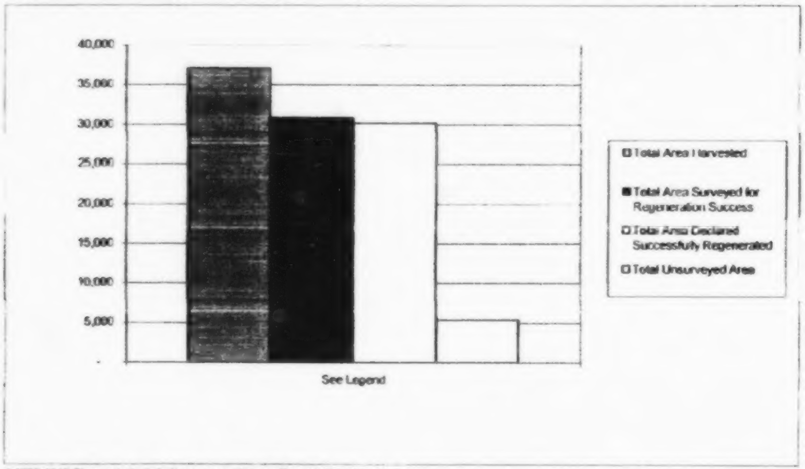
*** 1999-2000 USF was a one year contingency plan (Source 2000 IFA Manager's Trend Report and RPFO-7)

2005 Independent Forest Audit

Table 7 - Harvested Area Successfully Regenerated - Summary of All Forest Units

MU: Spanish Forest

	AREA IN HECTARES (All Forest Units Combined)
	1990-1996*
Total Area Harvested	37,006
Total Area Surveyed for Regeneration Success	30,904
Total Unsurveyed Area	5,362
Total Area Declared Successfully Regenerated	30,175
Total Area Surveyed Not Successfully Regenerated	729
NSR	
B&S	
Not Available for Regen (eg. Roads & landings)	740
Other	729
Percent of Area Surveyed Declared Successfully Regenerated	97.6%



* 1990-1996 Figures include both Lower and Upper Spanish Forest

** 1996-2000 Figures include both Lower and Upper Spanish Forest

*** 1999-2000 USF was a one year contingency plan

APPENDIX I

(Digital version of this report will not have Appendix I as these documents are under separate cover)

RPFO HIGHLIGHTS

1996-2000 LSF TMP (RPFO)
1996-1999 USF TMP (RPFO)
1999-2000 USF Contingency FMP (RPFO)
RPFO Summary 1990-1996 (Pending Amalgamation of USF and LSF)

REPORT OF PAST FOREST OPERATIONS

4.7 SUMMARY

April 1, 1990 to March 31, 1996

SPANISH FOREST
(Pending amalgamation of the Upper & Lower Spanish Forests.)

INTRODUCTION

After a Forest Management Plan (FMP) has been implemented, a Report of Past Forest Operations (RPFO) is produced to summarize the actual operations which were carried out during the five-year term of the plan, and assess the effectiveness of the selected management alternative in achieving management objectives and forest sustainability. This section is the required summary of the RPFO (section 4.7).

This RPFO was prepared for the pending amalgamated Spanish Forest. The Spanish Forest will comprise the former Upper and Lower Spanish Forests. Formal amalgamation is expected for April 1, 2000 coincident with the approval of the 2000 to 2020 Forest Management Plan. This RPFO covers a five-year term for which the original management units were still in place. A single RPFO has been prepared, which includes separate tables and text for each of the original management units. This provides for a single source of information on the two units. The conclusions and recommendations derived from the analysis of the data for each of the original units has been consolidated and related to the new Spanish Forest.

This RPFO was prepared for a six-year term, April 1, 1990 to March 31, 1996. This anomaly is the result of actions taken during the term of the 1990 to 2010 Timber Management Plans for the Upper and Lower Spanish. Due to delays in the preparation of a new Forest Resource Inventory, and a potential undercut as a result of strikes, high fire hazard and depressed market conditions for lumber and pulp, approximately 12 months of operations were not conducted. This situation presented the opportunity to extend the plans for an additional year, through one-year contingency plans for the 1995/1996 period. As no new operations were proposed in those plans, it is appropriate to report on the original plans and the contingency plans as a six-year planning period.

SUMMARY AND EVALUATION OF OPERATIONS

This section of the RPFO contains a summary and evaluation of the operations, which were carried out during the six-year term.

The source of information on the actual operations, which were carried out during the six-year term, is the annual reports which were submitted for the plan terms. The sources of information on the planned operations are tables from the applicable Timber Management Plans. Much of this information has been previously contained in the 1996 to 2015 FMP's for the original management units. Some additional information has been prepared to address new planning requirements.

Information has been summarized for each of the original management units and consolidated for the new Spanish Forest. As much as possible the format of the tabular information follows the format of the Summary and Evaluation of Operations section in the main report.

Depletion

The actual depletion area for the five-year term is summarized by forest unit and depletion type on the **Summary Report of Depletion by Area** table. A comparison between the Available Harvest Area and the harvest and bypass depletion area is also presented in this table.

The planned and actual depletion areas are also summarized by forest unit and depletion type on the **Summary Report of Depletion Area: Comparison the Selected Management Alternative** table. For each depletion type, a comparison of the projected levels of depletion associated with the selected management alternative, the planned depletion areas, and the actual depletion areas, is also presented.

The previous two tables indicate that there was significant available harvest area bypassed. Area was bypassed due to terrain or low volume per hectare of conifer. Markets due not exist for the majority of the hardwood volume on this unit. All bypassed stands were photographed and typed during the preparation of the 1992 Forest Resource Inventory.

The planned harvest area and the actual harvest area are summarized by licensee and forest unit in the **Summary of Report of Planned Harvest Area by Licensee** table. Age classes have been grouped on this report as *"all"* since this information is not readily available for the report period. Licensees have been grouped as either E.B. Eddy or all others.

This table indicates that a number of unplanned third party licenses were issued on the forest. These licenses were issued to allow the harvest of declared surplus, bypass, and salvage operations. The demand for surplus varies by species. There is a high demand for any conifer species and virtually no demand for hardwoods.

SUMMARY REPORT OF DEPLETION BY AREA

Upper and Lower Spanish Forests

April 1, 1990 to March 31, 1996

Forest Unit	Age Class	Stage of Management	Available Harvest Area (ha)	Forecast Harvest Area (ha)	Depletion Area (ha)								Comparison between Available Harvest Area and Depletion Area (Harvest and Bypass)		Salvage Area (ha)
					Harvest	Bypass	Reserve	Natural				Total			
								Fire	Insect	Other	Subtotal		(ha)	(%)	
Upper Spanish Forest															
PJ	all		14,493	13,244	10,646	1,565	1,536	0	0	0	0	13,746	2,282	84%	0
SP	all		12,946	10,465	6,261	3,360	3,200	0	0	0	0	12,821	3,325	74%	0
PR	all		0	0	0	0	0	0	0	0	0	0	0	0%	0
PW	all		0	22	11	4	8	0	0	0	0	23	-15	0%	0
OC	all		0	85	39	54	135	0	0	0	0	228	-93	0%	0
BF	all		0	369	182	142	521	0	0	0	0	845	-324	0%	0
PO	all		25,127	9,561	3,777	1,547	2,628	0	0	0	0	7,952	19,803	21%	0
BW	all		14,229	5,387	1,974	2,431	2,008	0	0	0	0	6,413	9,824	31%	0
OH	all		0	112	14	96	71	0	0	0	0	181	-110	0%	0
Subtotal			66,795	39,245	22,904	9,199	10,106	0	0	0	0	42,209	34,692	48%	0
Lower Spanish Forest															
PJ	all		22,226	20,013	9,574	4,166	2,187	776	0	0	776	16,703	8,486	62%	0
SP	all		5,418	4,419	1,275	2,121	996	177	0	0	177	4,569	2,022	63%	0
PR	all		789	768	173	199	21	0	0	0	0	393	417	47%	0
PW	all		1,920	1,871	539	781	250	119	0	0	119	1,699	590	69%	0
OC	all		0	11	0	11	34	0	0	0	0	45	-11	0%	0
BF	all		0	562	96	420	128	56	0	0	56	698	-516	0%	0
PO	all		15,854	5,592	1,324	2,326	863	338	0	0	338	4,851	12,204	23%	0
BW	all		12,990	4,142	1,121	2,358	868	310	0	0	310	4,657	9,511	27%	0
OH	all		0	252	0	91	12	0	0	0	0	103	-91	0%	0
Subtotal			59,187	37,430	14,102	12,483	5,357	1,776	0	0	1,776	33,718	32,612	45%	0
Spanish Forest															
PJ	all		36,719	33,257	20,220	5,731	3,722	776	0	0	776	30,449	10,768	71%	0
SP	all		18,364	14,884	7,536	5,481	4,196	177	0	0	177	17,390	5,347	71%	0
PR	all		789	768	173	199	21	0	0	0	0	393	417	47%	0
PW	all		1,920	1,693	550	795	258	119	0	0	119	1,722	575	70%	0
OC	all		0	96	39	65	169	0	0	0	0	273	-104	0%	0
BF	all		0	931	278	562	647	56	0	0	56	1,543	-840	0%	0
PO	all		40,981	15,153	5,101	3,873	3,491	338	0	0	338	12,803	32,007	22%	0
BW	all		27,219	9,529	3,095	4,789	2,876	310	0	0	310	11,070	19,335	29%	0
OH	all		0	364	14	187	83	0	0	0	0	284	-201	0%	0
Total			125,982	76,675	37,006	21,682	15,463	1,776	0	0	1,776	75,927	67,304	47%	0

SUMMARY REPORT OF DEPLETION AREA: COMPARISON TO THE SELECTED MANAGEMENT ALTERNATIVE

Upper and Lower Spanish Forests

April 1, 1990 to March 31, 1996

	Harvest and Bypass			Reserves			Fire		Insects		Other		Total		
Forest Unit	Available Harvest Area (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)
Upper Spanish Forest															
PJ	14,493	13,244	12,211		1,253	1,535		0		0		0	14,493	14,497	13,746
SP	12,946	10,456	9,621		2,524	3,200		0		0		0	12,946	12,980	12,821
PR	0	0	0		0	0		0		0		0	0	0	0
PW	0	22	15		0	8		0		0		0	0	22	23
BF	0	369	324		508	521		0		0		0	0	877	845
OC	0	85	93		131	135		0		0		0	0	216	228
PO	25,127	9,561	5,324		2,324	2,628		0		0		0	25,127	11,885	7,952
BW	14,229	5,387	4,405		1,752	2,008		0		0		0	14,229	7,139	6,413
OH	0	112	110		71	71		0		0		0	0	183	181
Subtotal	66,795	39,236	32,103		8,563	10,106		0		0		0	66,795	47,799	42,209
Lower Spanish Forest															
PJ	22,226	20,013	13,740		2,213	2,187		776					22,226	22,226	16,703
SP	5,418	4,419	3,396		994	996		177					5,418	5,413	4,569
PR	789	768	372		21	21		0							
PW	1,920	1,671	1,330		248	250		119					1,920	1,919	1,699
BF	0	562	516		126	126		56					0	688	698
OC	0	11	11		34	34		0					0	45	45
PO	15,854	5,592	3,650		978	863		338					15,854	6,570	4,851
BW	12,990	4,142	3,479		799	868		310					12,990	4,941	4,657
OH	0	252	91		15	12							0	267	103
Subtotal	59,197	37,430	26,585		5,428	5,357		1,776		0		0	58,408	42,069	33,325
Spanish Forest															
PJ	36,718	33,257	25,951		3,466	3,722		776					36,719	36,723	30,449
SP	18,384	14,875	13,017		3,518	4,196		177					18,384	18,393	17,390
PR	789	790	387		21	29		0							
PW	1,920	1,756	1,423		379	385		119					1,920	2,135	1,927
BF	0	931	840		634	647		56					0	1,565	1,543
OC	25,127	9,672	5,335		2,358	2,682		0					25,127	11,930	7,997
PO	30,083	10,979	8,055		2,730	2,871		338					30,083	13,709	11,264
BW	12,990	4,254	3,589		870	939		310					12,990	5,124	4,838
OH	0	252	91		15	12		0					0	267	103
Total	125,992	76,666	58,688		13,991	15,463		1,776		0		0	125,203	89,846	75,511

SUMMARY OF REPORT OF PLANNED HARVEST AREA BY LICENSEE

Upper and Lower Spanish Forests

April 1, 1990 to March 31, 1996

Licensee or Grouping	Forest Unit	Age Class	Stage of Management	Area (ha)	
				Planned	Actual
Upper Spanish Forest					
E.B. Eddy Forest Products Ltd.	PJ	all		12,023	10,504
FMA 500400	SP	all		9,640	5,901
	PW	all		22	11
	PR	all		0	0
	OC	all		79	21
	BF	all		357	149
	PO	all		4,412	3,545
	BW	all		4,414	1,968
	OH	all		112	14
Other Licensees	PJ	all		0	142
	SP	all		0	360
	PW	all		0	0
	PR	all		0	0
	OC	all		0	18
	BF	all		0	33
	PO	all		0	232
	BW	all		0	6
	OH	all		0	0
Lower Spanish Forest					
E.B. Eddy Forest Products Ltd.	PJ	all		9,911	7,148
FMA 500500	SP	all		2,632	1,000
	PW	all		1,217	433
	PR	all		327	137
	OC	all		11	0
	BF	all		403	66
	PO	all		3,144	1,152
	BW	all		3,168	946
	OH	all		92	0
Other Licensees	PJ	all		0	2,428
	SP	all		0	275
	PW	all		0	106
	PR	all		0	36
	OC	all		0	0
	BF	all		0	30
	PO	all		0	172
	BW	all		0	170
	OH	all		0	0
Spanish Forest					
E.B. Eddy Forest Products Ltd.	PJ	all		21,934	17,652
FMA 500400 & 500500	SP	all		12,272	6,901
	PW	all		1,239	444
	PR	all		327	137
	OC	all		90	21
	BF	all		760	215
	PO	all		7,556	4,697
	BW	all		7,582	2,914
	OH	all		204	14
Other Licensees	PJ	all		0	2,566
	SP	all		0	635
	PW	all		0	106
	PR	all		0	36
	OC	all		0	18
	BF	all		0	63
	PO	all		0	404
	BW	all		0	176
	OH	all		0	0

Wood Utilization

The planned and actual volumes which were utilized are summarized by licensee (or group of licensees), area harvested and species, in the **Summary of Wood Utilization by Licensee** table.

As indicated on the table conifer utilization was within 10% of plan. This illustrates that demand for conifer was strong and there is no expected change to this demand. Hardwood utilization was approximately 45% of plan. The demand for poplar was weak during the report period. Recently the demand has increased. This is primarily the result of expansion in the oriented strand board and veneer industry. It is expected that this increased capacity will increase utilization from the Spanish Forest in future planning periods. Although E. B. Eddy's pulpmill can utilize hardwood there is an oversupply across the broader E. B. Eddy woodshed. Any utilization from this unit would only displace harvest on adjacent units.

Estimates of volume losses for the areas of natural depletions during the five-year term are summarized in the **Summary Report of Volume Associated with Natural Depletions** table.

Wood Utilization by Mill

The planned and actual harvest volumes from the Upper Spanish Forest delivered to Eddy's Nairn Centre sawmill, and all other mills is summarized in the **Summary Report of Wood Utilization by Mill** table. During the period of this report Eddy was not required to maintain records of third party license wood deliveries.

Although the actual amounts received by individual mills is not known, the following mills received significant amounts of spruce, pine and fir (SPF) sawlogs: J. E. Martel & Sons Lumber Limited - Chapleau, E. B. Eddy McChesney Lumber Division - Timmins, and E. B. Eddy McChesney Lumber Division - Ostrom. Poplar was delivered to Grant Forest Products Ltd. oriented strand board mill in Englehart and Norbord Industries Inc. veneer mill in Cochrane. White and red pine were utilized in a large number of sawmills.

It is apparent from this table however that E. B. Eddy's Nairn sawmill utilized over 80% of the fibre produced from the forest.

SUMMARY REPORT OF WOOD UTILIZATION BY LICENSEE

Upper and Lower Spanish Forests

RPFO TERM: April 1, 1990 to March 31, 1996

Licensee or Grouping		Harvest Area (ha)	Volume by Species (m3)										
			Product	Conifer					Hardwood				Total
				Pj	Sp	Pw	Pr	Subtotal	Po	Bw	OH	Subtotal	
Upper Spanish Forest FMA 500400	Planned	31,059	all	1,844,600	1,020,700	17,900	3,000	2,886,200	357,000	0	0	357,000	3,243,200
	Actual	22,113	all	1,922,882	753,008	9,359	4,468	2,689,717	128,479	617	0	129,096	2,818,813
All Other Licensees	Planned	0	all	0	0	0	0	0	0	0	0	0	0
	Actual	791	all	18,698	28,624	2,158	252	49,732	3,946	646	588	5,180	54,912
Subtotal	Planned	31,059	all	1,844,600	1,020,700	17,900	3,000	2,886,200	357,000	0	0	357,000	3,243,200
	Actual	22,904	all	1,941,580	781,632	11,517	4,720	2,739,449	132,425	1,263	588	134,276	2,873,725
Lower Spanish Forest FMA 500500	Planned	20,905	all	895,900	392,400	150,200	60,600	1,499,100	0	0	0	0	1,499,100
	Actual	10,882	all	764,295	301,358	59,008	60,941	1,185,602	6,387	2,400	4	8,791	1,194,393
All Other Licensees	Planned	0	all	0	0	0	0	0	0	0	0	0	0
	Actual	3,220	all	103,362	48,834	36,127	11,587	199,910	3,375	7,633	5,821	16,829	216,739
Subtotal	Planned	20,905	all	895,900	392,400	150,200	60,600	1,499,100	0	0	0	0	1,499,100
	Actual	14,102	all	867,657	350,192	95,135	72,528	1,385,512	9,762	10,033	5,825	25,620	1,411,132
Spanish Forest FMA 500400 & 500500	Planned	51,964	all	2,740,500	1,413,100	168,100	63,600	4,385,300	357,000	0	0	357,000	4,742,300
	Actual	32,995	all	2,687,177	1,054,366	68,367	65,409	3,875,319	134,866	3,017	4	137,887	4,013,206
All Other Licensees	Planned	0	all	0	0	0	0	0	0	0	0	0	0
	Actual	4,011	all	122,060	77,458	38,285	11,839	249,642	7,321	8,279	6,409	22,009	271,651
Subtotal	Planned	51,964	all	2,740,500	1,413,100	168,100	63,600	4,385,300	357,000	0	0	357,000	4,742,300
	Actual	37,006	all	2,809,237	1,131,824	106,652	77,248	4,124,961	142,187	11,296	6,413	159,896	4,284,857

SUMMARY REPORT OF VOLUME ASSOCIATED WITH NATURAL DEPLETIONS

Upper and Lower Spanish Forests

April 1, 1990 to March 31, 1996

Depletion Type	Area (ha)	Volume (m3)		
		Conifer	Hardwood	Total
Upper Spanish Forest				
Fire	0	0	0	0
Insect	0	0	0	0
Other:	0	0	0	0
Subtotal Other	0	0	0	0
Total	0	0	0	0
Lower Spanish Forest				
Fire	1,776	106,349	78,440	184,789
Insect	0	0	0	0
Other:	0	0	0	0
Subtotal Other	0	0	0	0
Total	1,776	106,349	78,440	184,789
Spanish Forest				
Fire	1,776	106,349	78,440	184,789
Insect	0	0	0	0
Other:	0	0	0	0
Subtotal Other	0	0	0	0
Total	1,776	106,349	78,440	184,789

SUMMARY REPORT OF WOOD UTILIZATION BY MILL
Upper and Lower Spanish Forests

April 1, 1990 to March 31, 1996

Mill	Commitment Type	Committed Volume (m3)	Product	Planned Volume by Species (m3)			Actual Volume by Species (m3)		
				Conifer	Hardwood	Total	Conifer	Hardwood	Total
Upper Spanish Forest									
Eddy - Nairn	FMA Holder		SPF sawlog	2,685,700	0	2 685,700	2,373,191	0	2,373,191
Other Mills:			Pj	130,800	0	130,800	249,495	0	249,495
			Sp	48,800	0	48,800	100,526	0	100,526
			Pw	17,900	0	17,900	11,517	0	11,517
			Pr	3,000	0	3,000	4,720	0	4,720
			Po	0	357,000	357,000	0	132,425	132,425
			Bw	0	0	0	0	1,263	1,263
			OH	0	0	0	0	588	588
Total				2,886,200	357,000	3,243,200	2,739,449	132,425	2,871,874
Lower Spanish Forest									
Eddy - Nairn	FMA Holder		SPF sawlog	1,288,300	0	1,288,300	1,102,111	0	1,102,111
Other Mills:			Pj	0	0	0	82,954	0	82,954
			Sp	0	0	0	32,784	0	32,784
			Pw	150,200	0	150,200	95,135	0	95,135
			Pr	60,600	0	60,600	72,528	0	72,528
			Po	0	0	0	0	9,762	9,762
			Bw	0	0	0	0	10,033	10,033
			OH	0	0	0	0	5,825	5,825
Total				1,499,100	0	1,499,100	1,385,512	25,620	1,411,132
Spanish Forest									
Eddy - Nairn	FMA Holder		SPF sawlog	3,974,000	0	3,974,000	3,475,302	0	3,475,302
Other Mills:			Pj	130,800	0	130,800	332,449	0	332,449
			Sp	48,800	0	48,800	133,310	0	133,310
			Pw	168,100	0	168,100	106,652	0	106,652
			Pr	63,600	0	63,600	77,248	0	77,248
			Po	0	357,000	357,000	0	142,187	142,187
			Bw	0	0	0	0	11,296	11,296
			OH	0	0	0	0	6,413	6,413
Total				4,365,300	357,000	4,742,300	4,124,961	159,896	4,284,857

Renewal, Tending and Protection

The planned and actual areas of renewal and tending operations are summarized by silvicultural treatment method in the **Summary Report of Renewal, Tending and Protection Operations** table.

Although variation exists within the former management units the total renewal program in the Spanish Forest approximates plan. Most of the shortfalls are the result of overestimating the area requiring retreatment.

It is also apparent that the area planned for aerial seeding may have been too optimistic in the past. It would appear from this period that about 50% of the area can be regenerated using this technique.

There was a target to do chemical site preparation during the plan, however, this technique was not utilized and obviously the target was too high. The use of this technique is not expected to increase in the short term.

More area required aerial application of herbicide than planned. Recent provincial audits have spoken to the need for plantation release to support a future conifer based forest industry. It is difficult to predict areas requiring this treatment at the five-year plan stage. A possible explanation for the over achievement would be the increased planting program on competitive sites.

The jack pine budworm re-emerged during the plan period and by 1994 it had reached the infestation level that warranted a protection program. This program covered approximately 21,500 hectares of prime jack pine forest in 1995 and 36,800 hectares in 1996, using the bacterial insecticide bacillus thuringensis. The vast majority of this area was in the Lower Spanish, which has historically experienced outbreaks earlier and in a greater magnitude than the Upper Spanish.

SUMMARY REPORT OF RENEWAL, TENDING AND PROTECTION OPERATIONS

Upper and Lower Spanish Forests

April 1, 1990 to March 31, 1996

	Upper Spanish		Lower Spanish		Spanish Forest	
	Planned	Actual	Planned	Actual	Planned	Actual
Renewal						
Regeneration						
Uneven-Aged Management						
Selection Cut - Harvest	0	0	0	0	0	0
Total Uneven-Aged Management	0	0	0	0	0	0
Even-Aged Management						
Natural Regeneration						
Clearcut	14,300	9,382	9,500	12,190	23,800	21,572
Strip Cut	0	0	0	0	0	0
Seed Tree Cut	0	0	500	392	500	392
Uniform Shelterwood Seed Cut	0	0	0	0	0	0
Subtotal Natural	14,300	9,382	10,000	12,582	24,300	21,964
Artificial Regeneration						
Planting	6,260	7,675	5,350	4,320	11,610	11,995
Seeding direct	11,060	9,291	7,180	3,944	18,240	13,235
with site preparation	0	0	0	0	0	0
Scarification	0	0	0	0	0	0
Subtotal Artificial	17,320	16,966	12,530	8,264	29,850	25,230
Total Even-Aged Management	31,620	26,348	22,530	20,846	54,150	47,194
Total Regeneration	31,620	26,348	22,530	20,846	54,150	47,194
Site Preparation						
Mechanical	16,110	17,384	11,980	7,698	28,090	25,082
Chemical	3,730	2,300	3,480	18	7,210	2,318
Prescribed Fire	0	91	0	0	0	91
Total Site Preparation	19,840	19,775	15,460	7,716	35,300	27,491
Tending						
Cleaning						
manual	0	151	0	0	0	151
chemical - ground	0	0	0	3	0	3
- aerial	5,820	9,893	5,870	6,076	11,690	15,969
mechanical	0	0	0	0	0	0
prescribed burn	0	0	0	0	0	0
Spacing, pre-commercial thinning, improvement cutting						
even-aged	0	156	0	0	0	156
uneven-aged	0	0	0	0	0	0
Cultivation						
Total Tending	5,820	10,200	5,870	6,079	11,690	16,279
Protection (Insect Pest Control)						
accelerated harvest		0		0		0
salvage		0		0		0
manual protection		0		0		0
ground insecticide		0		0		0
aerial insecticide		5,348		52,928		58,276
Total Protection		5,348		52,928		58,276

Renewal Support

The following table summarizes the renewal and tree improvement activities over the six-year period.

	SPECIES					
Activity	Jack Pine		Black/White Spruce		White/Red Pine	
	Plan	Actual	Plan	Actual	Plan	Actual
Cone Collection (hectolitres)						
Upper	3,900	1,444	-	6	-	-
Lower	2,500	2,155	-	-	-	66
Total	6,400	3,599	-	6	-	66
Seed Extraction (millions)						
Upper	542.1	200.7	-	2.6	-	-
Lower	347.5	299.5	-	-	-	3.0
Total	889.6	500.2	-	2.6	-	3.0
Stock Production (thousands)						
Upper	10,042	12,617	-	286	-	57
Lower	8,350	7,786	-	-	250	351
Total	18,392	20,403	-	286	250	408

As the table indicates, the cone collection target was not achieved. This had two immediate impacts. First, the amount of seed in storage was completely exhausted. This put unnecessary pressure on cone collection, shipping, seed extraction and testing to be completed as *"rush"* or *"just in time"* jobs. This also resulted in having no ability to meet an unexpected demand for seed. Unexpected demand could arise in the event of a major fire on this or an adjacent management unit.

Second, seed for use in regeneration programs was obtained from other management units. It is generally accepted that the use of local seed is preferred. Genetic diversity is maintained, and the seed should be best adapted for local conditions. When seed from other units was used it was obtained from immediately adjacent units, in an attempt to minimize the potential negative effects.

The Sustainable Forest License, containing Eddy's obligation to collect cones, has remedied this problem. This unit has a large seed demand due to the use of aerial seeding as a regeneration technique.

Regeneration Assessment

The planned and actual area assessed for regeneration success, as well as the area successfully renewed (i.e., area which meets regeneration standards), are summarized by forest unit and silvicultural treatment package in the **Summary Report of Assessment of Regeneration Success** table.

During the report period only two broad silvicultural treatment packages were described; intensive regeneration and extensive regeneration. Extensive regeneration was used in spruce, poplar, white birch and white pine working groups, and used natural regeneration techniques. Intensive regeneration involved the use of mechanical site preparation, planting or seeding, and aerial herbicide tending. Intensive regeneration was used to renew jack pine.

Both regeneration techniques were successfully implemented on the management units.

SUMMARY REPORT OF ASSESSMENT OF REGENERATION SUCCESS

Upper and Lower Spanish Forests

April 1, 1990 to March 31, 1996

Forest Unit	Silvicultural Treatment Package	Area assessed (ha)		Area which meets Regeneration Standards (ha)
		Planned	Actual	
Upper Spanish Forest				
Jack Pine	Intensive Regeneration	10,723	10,815	10,732
Jack Pine	Extensive Regeneration	0	94	94
Spruce	Intensive Regeneration	0	0	0
Spruce	Extensive Regeneration	3,251	207	152
Red Pine	Intensive Regeneration	0	0	0
White Pine	Intensive Regeneration	0	0	0
Balsam Fir	Extensive Regeneration	0	80	14
Poplar	Extensive Regeneration	4,305	2,712	2,306
White Birch	Extensive Regeneration	479	393	393
Subtotal		18,758	14,301	13,691
Lower Spanish Forest				
Jack Pine	Intensive Regeneration	4,915	4,674	4,674
Jack Pine	Extensive Regeneration	0	42	42
Spruce	Intensive Regeneration	85	0	0
Spruce	Extensive Regeneration	0	720	720
Red Pine	Intensive Regeneration	85	37	37
White Pine	Intensive Regeneration	85	70	70
Balsam Fir	Extensive Regeneration	0	0	0
Poplar	Extensive Regeneration	0	3,126	3,126
White Birch	Extensive Regeneration	0	1,108	1,108
Subtotal		5,170	9,777	9,777
Spanish Forest				
Jack Pine	Intensive Regeneration	15,638	15,489	15,406
Jack Pine	Extensive Regeneration	0	136	136
Spruce	Intensive Regeneration	85	0	0
Spruce	Extensive Regeneration	3,251	927	872
Red Pine	Intensive Regeneration	85	37	37
White Pine	Intensive Regeneration	85	70	70
Balsam Fir	Extensive Regeneration	0	80	14
Poplar	Extensive Regeneration	4,305	5,838	5,432
White Birch	Extensive Regeneration	479	1,501	1,501
Total		23,928	24,078	23,468

Harvest and Regeneration Success

It is not possible to complete a summary report on the status of harvested and regenerated areas. Concepts needed to complete this table were not required during and previous to the report period. Depletion, silvicultural and free-to-grow records were maintained on the 1973 Forest Resource Inventory. This inventory is not available in digital format, which makes the task of overlaying the information particularly difficult.

The Company has had virtually no failures when artificially regenerating jack pine. Natural regeneration programs are also highly successful.

With the receipt of a digital inventory, and the subsequent updating of all depletion and regeneration since 1990, an examination of success may be possible in the future. Consideration to evaluating the accuracy of predicting Future Forest Unit and the year of successful regeneration, by initial forest unit and silvicultural treatment package, should be made during the preparation of the 2000 to 2020 plan.

Access Roads

The actual length of new primary and secondary roads, which were constructed during the five-year term, is summarized in the **Summary Report of Primary and Secondary Road Construction and Use Management** table, and compared to the planned construction. Only total construction by road class has been indicated on this table.

The amount of primary and secondary road constructed was below plan levels. This is due to some roads not being constructed. Roads were not constructed for the following reasons:

a) Lower quality road was built instead of the primary or secondary road. Examples of a lower quality road would include winter roads or tertiary roads.

b) The road was not required in the plan period.

c) The road has been deferred to a future planning period.

The shortfall in road construction did not impact on any harvest or renewal objectives.

SUMMARY REPORT OF PRIMARY AND SECONDARY ROAD CONSTRUCTION AND USE MANAGEMENT

Upper and Lower Spanish Forests

April 1, 1990 to March 31, 1996

Road Name	Road		Construction (km)		Use Management					
					Maintenance		Access Control		Abandonment	
	Class	Length (km)	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Upper Spanish Forest A. New Roads										
	1		14.08	4.6						
	2		211.59	163.4						
Subtotal			225.67	168.0						
B. Existing Roads										
Subtotal			0.00	0.0						
Lower Spanish Forest A. New Roads										
	1		12.07	8.6						
	2		145.04	108.6						
Subtotal			157.11	117.2						
B. Existing Roads										
Subtotal			0.00	0.0						
Spanish Forest A. New Roads										
	1		26.15	13.2						
	2		356.63	272.0						
Subtotal			382.78	285.2						
B. Existing Roads										
Subtotal			0.00	0.0						

Appendix B: Audit Team Members and Qualifications

The IFAPP identified the following qualifications for Audit Teams:

Lead Auditor:
- must have a minimum of 7 years recent and relevant experience in forest management and forest operations, in similar types of forests, preferably in Ontario;
- must be trained in auditing procedures and have current forest auditing experience; and
- ideally is certified as an environmental auditor.

Audit Team:
- minimum of two people with experience in forest management planning and forest operations;
- a minimum of one wildlife biologist and/or ecologist;
- minimum of one person with experience in assessing: socioeconomic profiles and the social and economic impacts which may result from forest management planning decisions; public consultation processes in the context of forest management; and First Nations involvement in forest management planning;
- for each individual, minimum of 7 years recent and relevant experience in forest management and forest operations in similar forest types, preferably in Ontario;
- ideally, some Audit Team members will be certified as environmental auditors;
- at least one member of the Audit Team must have demonstrated experience and/or training in the requirements of the FMPM including the strategic direction and determination of sustainability component;
- at least one member of the Audit team shall be a Registered Professional Forester; and
- team size is a minimum of three.

The team for this audit, described in Table B - 1 below, included five people in the following positions: Lead Auditor and Harvesting and Modeling Forester, Wildlife and Roads Expert, Silviculturalist, Planning Auditor, and Consultation Auditor.

Table B - 1. The Roles, Responsibilities, and Qualifications of the Audit Team

Name/Company	Role	Responsibilities	Credentials
Mr. Chris Wedeles ArborVitae Environmental Services Ltd.	Lead Auditor, Wildlife and Roads Expert	• overall audit coordination; • oversee activities of other team members; • liaise with Company and MNR; • review and inspect Areas of Concern Documentation and Practices; • review and inspect aspects of forest management related to environmental practices and wildlife management integration; • review and inspect access and water crossings.	B.Sc., M.Sc. (Wildlife Biology); 18 years wildlife and forest ecology and experience in Ontario; completed over 20 previous forest audits; certified as an auditor by the Quality Management Institute.
Dr. Jeremy Williams, RPF ArborVitae Environmental Services Ltd.	Harvesting and Modeling Forester	• review and inspect forest harvesting records and practices; • review aspects of forest management related to forest economics and social impacts • reviews FMP modeling inputs and activities	B.Sc.F., Ph.D. (Forest Economics); 14 years consulting experience in Ontario related to forest management, planning, wood supply modeling, and forest economics; participated in 11 previous auditing assignments; certified as an auditor by the Quality Management Institute.
Mr. Rob Arnup, Rob Arnup Consulting	Silviculturist	• review and inspect silvicultural practices and related documentation; • review and inspects selected environmental aspects of forest management	B.Sc. Hons. (Biology). Twenty-two years experience in forest management in Ontario; author or co-author of several silvicultural guides and operational manuals; participated in five previous auditing assignments.
Mr. Nick Baggs, RPF NGB Forest Management Consulting	Planning Auditor	• review FMP and related documents to ensure compliance with FMPM and TMPM and other regulations	B.Sc.F., R.P.F. 17 years experience in silviculture; considerable experience in Northeastern Ontario; extensive experience in writing forest management plans forest auditing and, ecosystem-based management applications and environmental consulting.
Dr. Brent Tegler, North-South Environmental Inc	Consultation Auditor	• review documentation related to forest management consultation processes • Consult with stakeholders, LCC, and First Nations regarding forest management issues	Dr. Tegler is an ecologist who is a principal with North-South Environmental Inc. Dr. Tegler has worked extensively in the forest sector of Ontario, as well as in Africa, Papua New Guinea, Solomon Islands, and the US.

Appendix C: Independent Forest Audit Guiding Principles

The IFAPP identifies several components of the audit process. The audit protocol constitutes the main framework for the audit. There are eight principles within the audit protocol (Table C - 1). Each principle contains a series of criteria which, if met, will result in the principle being achieved. For each criterion, a number of procedures are used to assess the auditees compliance and effectiveness.

Table C - 1. The Eight Principles Underlying the Audit Protocol, as noted in the IFAPP.

1. Commitment

Commitment is reflected in vision, mission and policy statements of the Company. Vision and mission statements are intended to provide long-term guidance for the organization. Policy statements reflect how the organization's vision and mission will be achieved. These statements must be reflected in the day-to-day operations of the organization.

2. Public Participation

The process of sustainable forest planning, implementation and monitoring is conducted in an open consultative fashion, with input from all members of the planning team, Local Citizens Committee, native groups, and other parties with an interest in the operations of the forest unit.

3. Forest Management Planning

The forest management planning process involves the input of a number of individuals and groups to describe the current condition of the forest, the values and benefits to be obtained from the forest, the desired condition of the forest in the future, and the best methods to achieve that goal. Certain minimum standards and procedures have been established upon which all management units are evaluated.

4. Plan Implementation

Verification of the actual results of operations in the field compared to the planned operations is required to be able to assess achievement of the plan objectives and compliance with laws and regulations. In conjunction with the review of operations, the reporting tables are tested to ensure accurate results are reported.

5. System Support

System support concerns resources and activities needed to support plan implementation so as to achieve the desired objectives. Appropriate control, documentation and reporting procedures must be in place and operational. Planned action should occur at planned times, in planned places and to the planned degree.

6. Monitoring

The activities and the effects of these activities in achieving management objectives must be regularly measured and assessed. In particular, the indicators of achievement must be assessed and their effectiveness reviewed.

7. Achievement of the Management Objectives and Forest Sustainability

Periodic assessments of the management of the forest unit operations and the forest unit must be made in order to determine whether forest sustainability and other management objectives are being achieved. This includes comparing the actual values of the predetermined indicators against the planned values and assessing the reasons for any significant deviations.

8. Contractual Compliance

The licence must comply with the specific requirements of the SFL.

Appendix D: List of Acronyms

AOC	Area of Concern
ACOP	Annual Compliance Operating Plan
AHA	Available Harvest Area
APA	Annual Plan of Action
AR	Annual Report
AWS	Annual Work Schedule
B&S	Barren and Scattered
B.Sc.F	Bachelor of Science in Forestry
CFSA	Crown Forest Sustainability Act
Class EA	Class Environmental Assessment for Timber Management on Crown Lands in Ontario
DFCC	Desired Future Forest Condition
DM	District Manager
EMS	Environmental Management System
FIM	Forest Information Manual
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FOIR	Forest Operations Inspection Report
FOP	Forest Operations Prescription
FRI	Forest Resource Inventory
FRT	Forest Renewal Trust
FRWI	Forest Roads and Watercrossings Initiative
FTG	Free-to-Grow
GFP	Grant Forest Products
GIS	Geographic Information System
GPS	Global Positioning System
ha	Hectares
HSE	Tolerant Hardwood Selection Forest Unit
HSH	Tolerant Hardwood Shelterwood Forest Unit
km	kilometres
KVP	Kalamazoo Vegetable Parchment Company
IFA	Independent Forest Audit
IFAPP	Independent Forest Audit Process and Protocol
ISO	International Standards Organization
IWA	International Woodworkers Association
LCC	Local Citizens Committee
m^3	cubic meters
MA	Management Alternative
MAFA	Moose Aquatic Feeding Area
MHBW	Mixed Hardwood - White Birch Forest Unit
MHPO	Mixed Hardwood – Poplar Forest Unit
MNR	Ontario Ministry of Natural Resources
MOEE	Ministry of the Environment and Energy
MROL	Ministry Approved Operating Level
MSP	Management System Procedures
MXCON	Mixed Conifer Forest Unit
MXWD	Mixedwood Forest Unit
NDPEG	Natural Disturbance Pattern Emulation Guide

NRVIS	Natural Resource Values Information System
OCON	Other Conifer Forest Unit
OL	Overlapping Licence or Overlapping Licensee
PJPUR	Jack Pine Pure Forest Unit
RPF	Registered Professional Forester
PRPUR	Red Pine Pure Forest Unit
PWRSH	White and Red Pine Shelterwood Forest Unit
PWRST	White and Red Pine Seedtree Forest Unit
RPFO	Report of Past Forest Operations
RSA	Resource Stewardship Agreement
SBLOW	Black Spruce Lowland Forest Unit
SGR	Silvicultural Ground Rule
SFL	Sustainable Forest Licence
SFM	Sustainable Forest Management
SFMM	Strategic Forest Management Model
SIP	Site Preparation
SGR	Silvicultural Ground Rules
SOP	Standard Operating Procedure
TOR	Terms of Reference
VTE	Vulnerable Threatened or Endangered
WI	Work Instruction

Appendix E Summary of Input to the Audit Process

General Public/Other Stakeholders

Two approaches (in addition to meeting with the LCC and interviewing its members) were used to encourage the public to provide input into the audit: 1) all individuals/organizations on the MNR's FMP mailing list were sent a brief questionnaire asking for input on the management of the forest; and 2) Advertisements were placed in regional newspapers soliciting input. A special audit e-mail account was established for individuals to respond to.

In response to these attempts we received 40 responses. For those comments which were tractable, and inside the scope of the audit, the audit team pursued and resolved them with representatives of the company and/or MNR. Several of the responses identified more than one concern. In approximate order of the frequency with which they were expressed, following is a list of issues identified in returned questionnaires and accompanying letters:

- General comments against clearcutting
- Wood waste on Metagama Road
- Damage to trails
- Logging trucks driving poorly
- Wood waste in general
- Need to plant more species of trees
- Discontent with access barriers and road removals
- Discontent with timing of slash pile burning
- Concern regarding slash pile management
- Concern about effects of harvesting on furbearers
- Concern about garbage left in operational site
- Discontent with use of herbicides on the forest
- Discontent with road maintenance
- Concern with extent/amount of rutting on the forest
- Concerns with mining industry
- Discontent with the need to go to company office to view plans
- Need for more integration of moose and forest management
- Need for harvesting of a specific site

To the extent that the issues raised by the public were in the purview of the IFA, there were considered by the auditors.

Local Citizens' Committee

The Spanish Forest LCC participated in the pre-audit meeting and held an evening meeting with the audit team during the week of the audit to discuss the role of the LCC in the IFA. These meetings provided an opportunity for LCC members in attendance to have direct contact with the audit team to provide any relevant information regarding SFM on the Spanish Forest. Two LCC members participated in the field site inspections conducted on the Spanish Forest during the audit week. All LCC members were been contacted in order to extend a invitation to be interviewed by the audit team, eight of the sixteen LCC members were interviewed.

Topics identified by the LCC included:

- Great satisfaction with the manner in which their district MNR contact has provided service to them;
- Concern with the level of logistic and financial support provided by the MNR to attend/host regional LCC meetings;
- Concerns related to access management on the forest;
- Concerns related to wildlife habitat;
- White-pine mangement;
- Integration of recreational, tourism, and timber management; and
- The role of the LCC in planning.

The issues raised by members of the LCC were considered in this audit.

Native Communities

There are 16 First Nations that may have an interest in the Spanish Forest according to MNR files. All of the First Nations were contacted first by letter and a second time fax inviting their participation in the IFA. One written reply was received; which contained a request for an interview with the audit team. Phone interviews have been conducted with members of five First Nations. Staff from Domtar and Sudbury District MNR were also interviewed to obtain information on First Nations participation in SFM on the Spanish Forest.

During the audit the First Nations contacted expressed a desire to participate in forest management to protect native values such as traditional hunting and fishing areas, areas used for harvesting non-timber forest products such as berries, and areas of cultural/spiritual significance. The desire to participate in forest management also included forest harvesting and silviculture operations either for individuals or First Nations companies.

First Nations expressed difficulty in participating in harvesting operations for a variety of reasons, such as: the requirements associated with membership in the local union (previously IWA – Industrial, Wood and Allied Workers, now part of the United Steelworkers of Canada); the small size of allocations making economically viable operations unfeasible, or insufficient training of First Nations persons.

There was also concern expressed regarding herbicide spraying, in particular the impact of spraying on berries and the lack of notification to First Nations communities about areas to be sprayed.

First Nations would also like to see increased effort put towards field work to better map their values on the Spanish Forest.

To the extent that the issues raised by First Nations were in the purview of the IFA, there were considered by the auditors.

Commitment Holders

The audit team held discussions with the major commitment holders for the Spanish Forest. Staff from Grant Forest Products indicated satisfaction with the manner in which its commitments had been met (the average annual shipments from the Spanish exceeded by approximately 40% the commitment level). Staff from GFP indicated a desire to participate as a planning team member in the next audit, and the audit team concurs that the MNR should consider and has included a suggestion to this effect in this audit.

Data on deliveries of wood to Norbord indicate that the commitments from the Spanish forest have not been met, however there is an agreement with Domtar for volume to be supplied from both the Pineland and Spanish Forest, and so deliveries from the Spanish Forest alone do not provide a good indication of the extent to which the inter-company agreement was met. As discussed in Section 3.8, Norbord staff observed that they didn't feel that meeting the commitment was a particularly high priority for Domtar, while Domtar staff indicated that they had worked with contractors during the audit period to encourage them to cut and this was improving their ability to supply veneer to Norbord. The major concern of Norbord was that there were additional opportunities for harvesting and merchandizing poplar veneer that were being missed (see discussion in Section 3.4.2).

These items were considered in the audit.

SFL Holder

Numerous discussions were held with staff the Domtar prior to, during, and following the site visit week. Topics raised by Domtar staff include:

- Hauling of wood and restrictions related to the east and west branch Spanish River Bridges;
- Timing restrictions for conducting in-stream work related to AOC prescriptions for unsurveyed streams ;
- Harvest opportunities lost because of incomplete classification of MAFAs on the forest;
- Concern that the MNR share responsibility for the management of abandoned roads;
- The number of First Nations identified as having an interest in the Spanish Forest;
- The move to processor-based harvesting and the efficiencies which will result;
- The company's effective silviculture program;
- The company's reduction in the use of herbicides; and
- The good work of the LCC and the company's positive rapport with it.

All of the above items were considered in the audit.

Ministry of Natural Resources

Discussions with District, Regional, and Forest Management Branch MNR staff included the following topics:

- Access management on the forest;
- The distribution of compliance monitoring responsibilities amongst the three MNR districts;
- Maintenance issues related to access roads and bridges
- The projected declines in wildlife habitat on the forest;
- Management of values data;
- Integration of timber management and protected area management;

- Utilization of harvested wood;
- The First Nations' desire to conduct more harvesting operations on the Forest;
- The MNR's data management abilities;
- The performance of the LCC; and
- Silvicultural and harvest level achievements by the company.

All of these topics are discussed in this report.